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EARTH GARDEN

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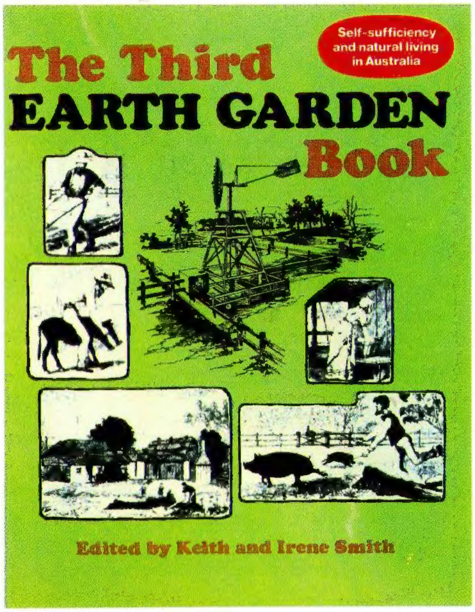
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EARTH GARDEN 31

Earth Garden, established in 1972, presents a range of natural lifestyles. It is intended as a key to sources, practical ideas, alternatives and self-sufficiency.

It is concerned with non-polluted living and growing, the back-to-the-earth movement, surviving in the city, the bush, food and diet, and the inner changes which follow when you are in tune with nature.

Let us lead you up Earth Garden's path to the good life.

We don't have advertisements in Earth Garden. That way we're not influenced by any vested interests. Books, places and products recommended are those we think relevant.

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The cover

Front: Top left — Two hydraulic rams built by Garry Briggs.
Top right — The sea breeze powers Peter Cole's wind generator.
Bottom — Slab and mudbrick home being built by Neville Ackland (note stone footings).
Back: Three steps in re-erecting a windpump at Chris and Rhonda Martin's farm.

Mainly food

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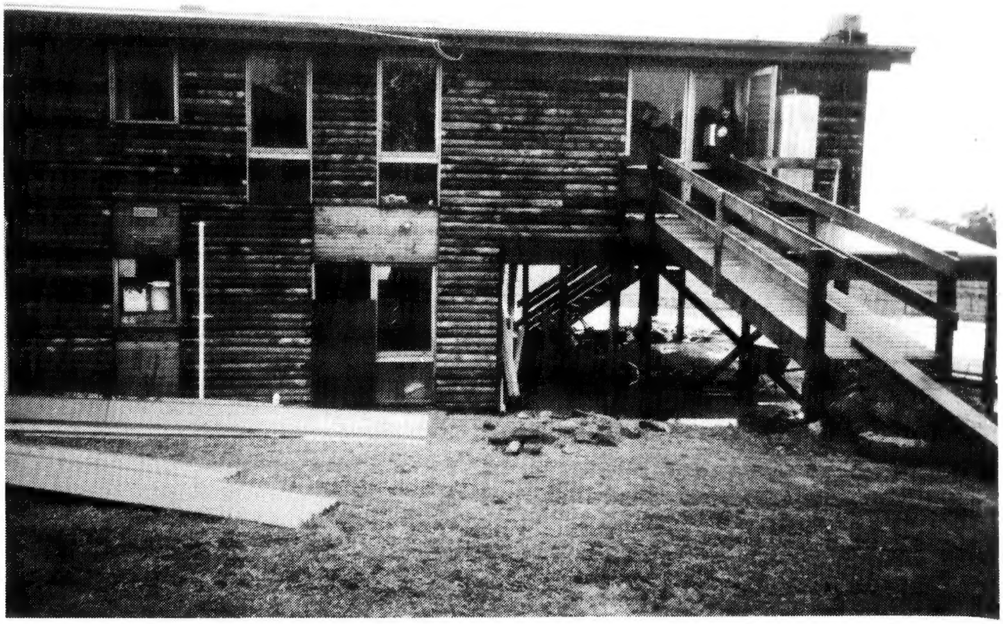
This kitchen works



Michaela on the back landing outside the kitchen when the house was just completed (trees have been planted since). The hot water tank is next to her and the solar panels are the shiny expanse next to the ramp.

By Maureen Leslie

About a year ago we moved into our new log cabin on 4 acres at Highlands, 20 km north of Yea, Victoria. The family consists of Rob, myself, and three teenage children.

We are trying to become as self-sufficient as possible and so, before building, we anticipated needing a good deal of kitchen space in which to cook, preserve and store our home-grown produce.

Our children will probably be leaving home to find jobs or training in a few years. So we felt justified in keeping bedroom space to a minimum, in order to have a good big kitchen and living room in a total house area of only 11½ squares.

These are some of the aspects of kitchen design which we felt were important, how we dealt with them and how they're working.

Hot water

The house is built well up off the ground, with a carport and basement/workshop underneath. This made it possible for us to position the solar panels for the hot water service on a frame below the house floor level. The hot water is then able to rise by convection to the 70-gallon tank on the landing outside the kitchen. The tank is also connected to the slow combustion stove. There is a 10 gallon holding tank on the roof.

Thus we have managed to do without a pump or an electric booster and our hot water requirements are always available, in spite of electricity blackouts or fuel shortages. The hot water system was supplied by Somer Solar, at Red Hill, Victoria.

Cooking

Our slow combustion stove is a *Rayburn* No 3 and is extremely good, but we do feel that $1,300 was too much to pay. One of our friends bought a second-hand *Everhot* for only $40.00, made new firebricks, installed a flue and had a most satisfactory cooker (with a better enamelled surface than ours), for less than $200.00. So, it pays to shop around.

Our stove has a warming oven and a rack over the cooktop, both of which are invaluable for drying fruit, beans and mushrooms (which abound in our area) and, of course, the washing.

Now while a slow combustion stove is marvellous in winter, warming the whole kitchen while it's cooking, it's a different story in summer. So we decided to put in another cooking top with a griller underneath. This is a *Roden* Cabana, designed especially for caravans, costing under $200.00 and run on bottled gas. The gas bottle cost $18.00 eight months ago and has still not run out, even through a very severe summer when we hardly ever used the big stove.

To complete the cooking facilities, we picked up a lidded electric frypan for $7.00 at the St Andrews market and this is our summer oven.

As a result of this combination of cooking and heating, our electricity bill is half what it was in our last house, which was all electric with an oil heater.

Storage

As you can see from the sketch, our large walk-in pantry is an integral part of the kitchen. It has wide shelves over the freezer for items not often used and shallow shelves all the way up the long wall. These hold all the preserves, spices and cooking ingredients and also ever-fewer packets and tins.

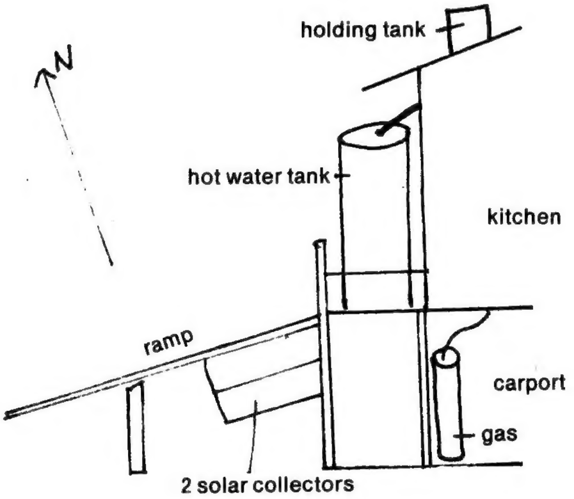
The plastic garbage bins are for storing large quantities of flour, powdered milk and rolled oats. I hope to get some more for rice, other grains and beans, which are needed often.

My cookery books are on the shelf over the bins and I also keep the waiting ironing (out of sight, out of mind) in a basket on this shelf. Cleaning materials and little needed stores and utensils are on the top shelves. The vegetable racks contain potatoes, lemons, onions, root vegetables and fruit. Green tomatoes ripen well here in the dark too. It is rather warm and dry in the pantry because of the freezer motor, so it should be a good place to dry herbs.

In the main part of the kitchen is the appliance cupboard, which is very handy. Its doors extend right down to the bench top. Open them and — *Voila!* — the mixer, blender and toaster are there on the bench in front of you, already plugged into a power point in the cupboard. The mixing bowls, chopping board and so on are on the shelves above.

This arrangement saves a lot of bending and lifting and if you're interrupted in the middle of concocting something, you can just shut the doors on the mess and come back later.

There are deep drawers for saucepan storage under the gas cooktop. They are convenient, but a disadvantage is that they are lined with white laminate, which looks beautiful at the beginning, but soon becomes badly marked by the saucepans. They are easy to clean, but who wants to be cleaning out drawers and shelves every couple of weeks? Brown or woodgrain finish would be more practical.



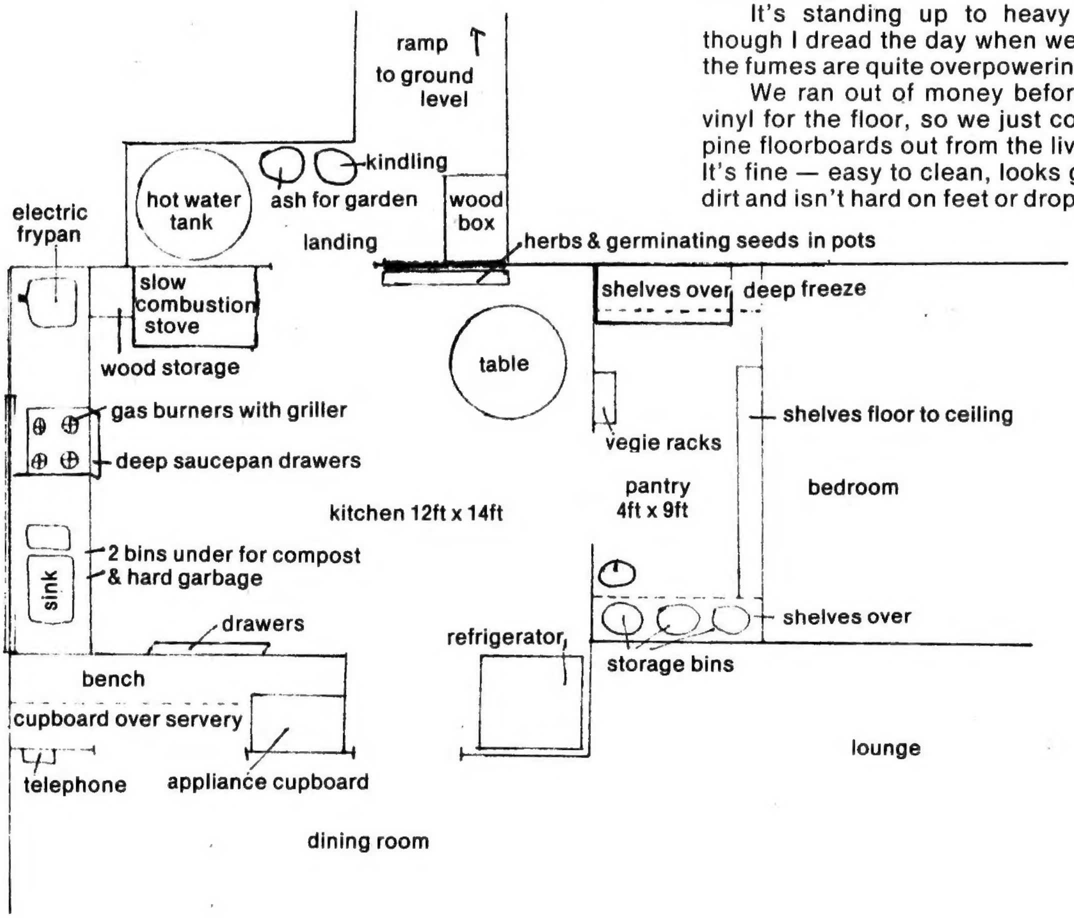
Design

The kitchen cupboards and walls are of pine, which looks beautiful, without being too dark. Best of all, it doesn't show dirty fingermarks and stains — well, not as much as plaster walls, anyway.

The bench tops are of Jarrah, coated with three coats of polyurethane and a final coat of heavy duty (floor) *Estapol.*

It's standing up to heavy wear extremely well, though I dread the day when we'll have to repaint it, as the fumes are quite overpowering.

We ran out of money before we could buy lino or vinyl for the floor, so we just continued the Estapol on pine floorboards out from the living area to the kitchen. It's fine — easy to clean, looks good, doesn't show the dirt and isn't hard on feet or dropped china.



Lighting

The lighting is all flurorescent, for brightness and also to save energy. There is one 40 watt tube over the sink, two in the middle of the room and one in the pantry. They can be used separately or together.

Garbage disposal

We find our 4ft 6in 1½ bowl sink adequate. It is possible to buy a metal basket which fits into the half-size sink, which would make it easier to wash and peel vegetables and save scraps for the chooks or the compost. In the meantime we make do with two metal removable strainers over the sink drainholes, which stops a lot of scraps going down the pipes.

Vegetable scraps for the ducks and chooks are kept in a pedal bin and there are two other small containers, for hard garbage and scraps for the compost, which are kept under the sink.

Ashes from the slow combustion stove and those from the open fireplace in the lounge are tipped into an ashcan on the landing outside the kitchen door, for removal to the garden, the compost heap, or the chooks' dustbath.

By the way, we burn bones after they've been picked over by the cats and chooks and thus add a little extra lime to the compost.

Conclusion

All told, we find our kitchen a very satisfactory work and family room. It's comfortable, convenient and attractive. Sitting here at the table writing this, with the winter sun shining through the window and looking out at our magnificent view over the Goulburn Valley, I find it difficult to move away from our kitchen.

P.S. Our house kit was supplied by *Log Systems,* Red Hill, Victoria.

FREEZING FOOD

Even a small garden can produce excess crops and leave you with more vegetables than you care to eat. It may cost more, but freezing is a quicker and easier way of preserving than drying, salting or bottling. This story covers the basics of home freezing.

The other methods of keeping food, including storing, were outlined in Earth Garden 12 *(also in* The Second Earth Garden Book*).*

Freezing food at home is a simple, quick and *reasonably* inexpensive method of preserving. The cost is linked to the price of your freezer and the electricity it uses, but you can *save* money by taking advantage of seasonal market gluts, bulk buying of meat and by capturing your own fresh, tender vegetables at the peak of their flavour straight from the garden.

In remote areas and on the farm there is also the definite advantage of being able to cook what you want when you want it, saving on petrol or fares and travelling time by stocking up on food and freezing it after a trip to town.

Frozen food comes out of the freezer *almost* the way it was when you put it in. There may be some — but very little — loss of the original colour, flavour, freshness and nourishment. Of course, nothing is *improved* by freezing, so you must always choose the freshest food available, package it properly, make sure freezing conditions are right and thaw meat and fish slowly and carefully.

The drawbacks to using a home freezer are obvious — both moral and monetary. There is the large first cost of the freezer, then a constant drain of non-stop electricity to run it. You are dependent upon a reliable supply from the electricity authority. You are vulnerable to blackouts because frozen food will rot within 24 hours. The price of electricity, generated by dwindling fossil fuels, will rise constantly in the coming years and, like it or not, the best freezer packaging — plastic bags, wrapping and tubs — is also a product of fossil fuels and high technology.

If you already have a freezer, or if you can accept these disadvantages, you may be reassured that freezing is one of the most *natural* ways to preserve perishable food. The temperature of foods is reduced by freezing to a level at which destructive bacteria become dormant. Food spoiling enzymes and micro-organisms are not destroyed and will become active again at warmer temperatures — so try to keep within the suggested freezing time limits.

Water in foods is turned to ice, another factor which helps to prevent food decaying.

These are some of the advantages of owning and using a home freezer:

- Freezing cooked meals is simple, especially if you're not keen on cooking. If you have a busy time coming up, you can cook a range of meals and freeze them.
- Larger quantities of cooking aren't much extra trouble, so you can make more and use your freezer efficiently.
- Make double quantities when you are having a baking or cooking day. Bread, already baked, freezes well, so does dough which is ready to bake. You can use one lot the same day and freeze the rest for later use, saving a lot of time by doing these big chores just once to use several times.
- Baby food, which is eaten only in small quantities, can be cooked and pureed in bigger amounts, then frozen in containers big enough for one meal. One method is to freeze baby food in ice cube trays and store in plastic bags once they are frozen hard.
- Sauces freeze well. If you are making a difficult or time-consuming sauce, make more than you need immediately and freeze the rest.

Packaging

Food you plan to freeze must be packed in tightly sealed wrappers, which will keep moisture in and air out. Freezer bags of heavy plastic or polyethylene sheets may be bought at stores and supermarkets. You can also use recycled rigid plastic containers, such as cottage cheese or margarine tubs with lids.

Fill up plastic containers as much as possible to

CHOOSING A FREEZER

When choosing a freezer look for one with variable temperature settings. This will allow you to "fast freeze" food first (usually at a temperature of about —23°C), then keep it frozen at a constant temperature (around —18°C).

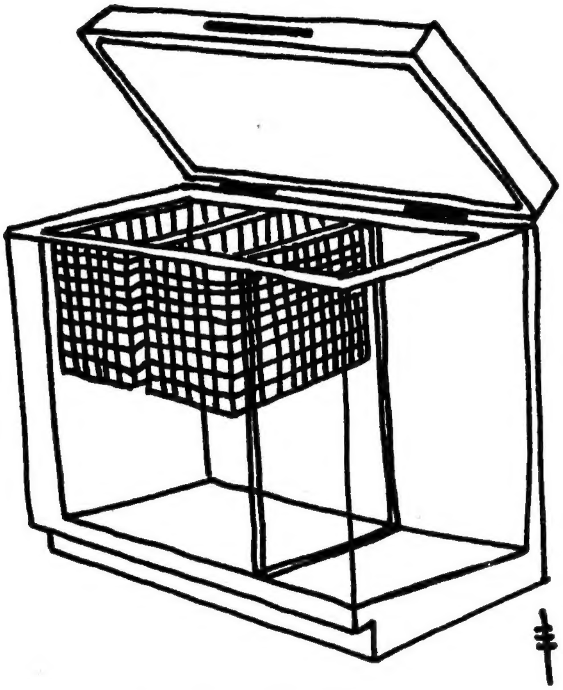
Keep in mind that freezers which defrost automatically use the most electricity while semi-automatic defrosting models use less and those with manual defrost the least electricity.

To decide what **size** freezer you need will involve some calculations which take into account the size of the family and whether or not you will be freezing your own home grown produce, or buying in bulk from the butcher or supermarket. Even city dwellers should allow at least 2 cubic feet per person, plus 2 cubic feet extra. In the country you may need to allow six cubic feet per person.

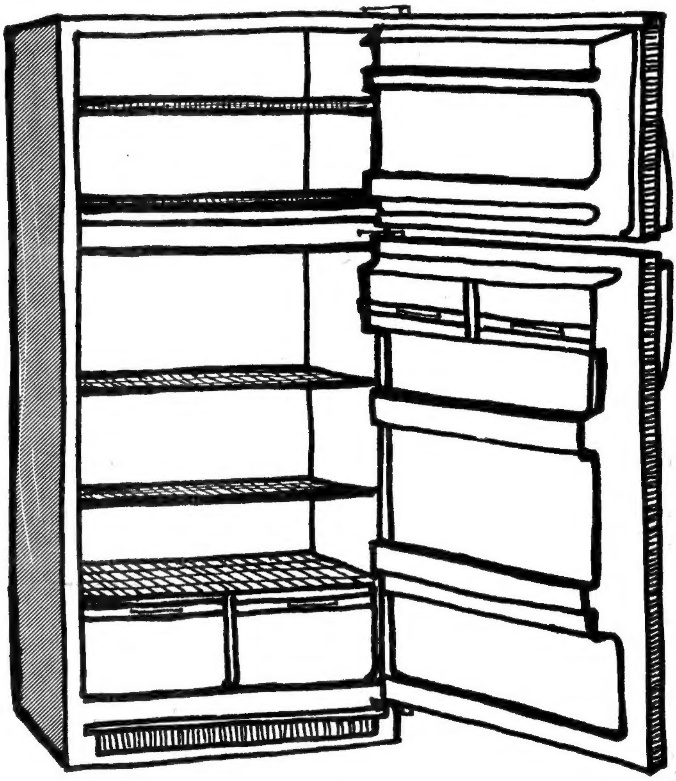
Weight of the freezer is another consideration. Add the weight of the freezer to the expected food load, allowing 25lb (12kg) of food per cubic foot of space for safety.

Next consider what **type** of freezing you require — upright freezer, combined upright freezer and refrigerator, or a chest freezer. If you prefer the combination, make sure you buy one with separate doors for the freezer and refrigerator compartments.

If it's in the kitchen, the freezer should be placed away from the stove or any other sources of heat. Make sure you allow enough space for the doors to open and allow a separate power point for the freezer.



Chest-type freezer



Combination upright refrigerator and freezer. The freezer at top has a capacity of 7cu ft and the refrigerator 14cu ft.

Upright freezer or freezer-refrigerator

Pro: Takes up a smaller area of floor space. Easy access to frozen goods. Small items may be kept in door shelves.

Con: Lets out cold air when the door is opened (a complete change of air takes about 12 seconds), thus using more energy.

Chest-type freezer

Pro: lets out less cold air than upright freezers when opened, which is why they are used for frozen goods in supermarkets. Use less energy to run and may be cheaper to buy.

Con: Harder to pack. Access to packages in deeper parts of the freezer not as easy as in an upright type. They need care in arranging frozen foods — wire baskets are necessary. Take up more floor space.

eliminate air, *unless* you are freezing a liquid such as soup or sauce, in which case you should leave some room for the liquid to expand when it freezes.

Seal wrapping paper or bags with special freezer adhesive tape or plastic and wire twist ties.

Labels are a definite aid in finding frozen foods easily. Label every packet with the contents, quantity or weight and the date frozen, using a felt pen to write directly onto the plastic or on the freezer label.

When you are confronted by an anonymous and shapeless lump of frozen food, it isn't easy to remember what it is or when you put it in the freezer. It's easy to lose track of frozen packets, so take care in labelling and arrange frozen food for easy access, especially in a chest type unit.

Food *not* suitable for freezing include milk sauces, some custards and mayonnaise, which tend to separate out. Some raw vegetables, like tomatoes, lettuce and other raw salad greens, watermelon, bananas (they develop an over-ripe taste and texture) and potatoes (unless made into chips: see table) don't freeze well.

Meat, Poultry & Fish

Meat, poultry and fish are all suitable for freezing. Most meat will keep for up to a year, *except* organ meats (like heart and liver) and salted meats (like ham and bacon), which are best kept only up to about three months.

Game (like rabbit) and farm killed animals should be allowed to age for about three days before freezing. It is also best to bone out whole or half animal carcasses before freezing them.

Chops, steaks, fish fillets and sliced cooked meats should be wrapped with sheets of plastic or foil between the pieces for easy separation or unpacking after freezing.

Raw meat is best thawed slowly before use, preferably in the refrigerator, but cooked meats may be taken straight from the freezer to the stove. Keep the 'drip' or juice of raw thawed meat for cooking because it contains valuable B vitamins.

Poultry and fish have a recommended freezer keeping time of up to six months. They should be thawed before cooking. Poultry is best thawed in its freezer wrapping.

Vegetables

Most vegetables are good candidates for the freezer and will keep for nine-to-12 months.

Vegetables should first be prepared by washing, peeling and cutting, then *blanched* by plunging them into light salted boiling water for a short time, then cooling them quickly. Blanching is necessary because the enzymes in vegetables (and in fruit) are still active at low temperatures. It stops ripening and also helps to prevent changes in the colour of food.

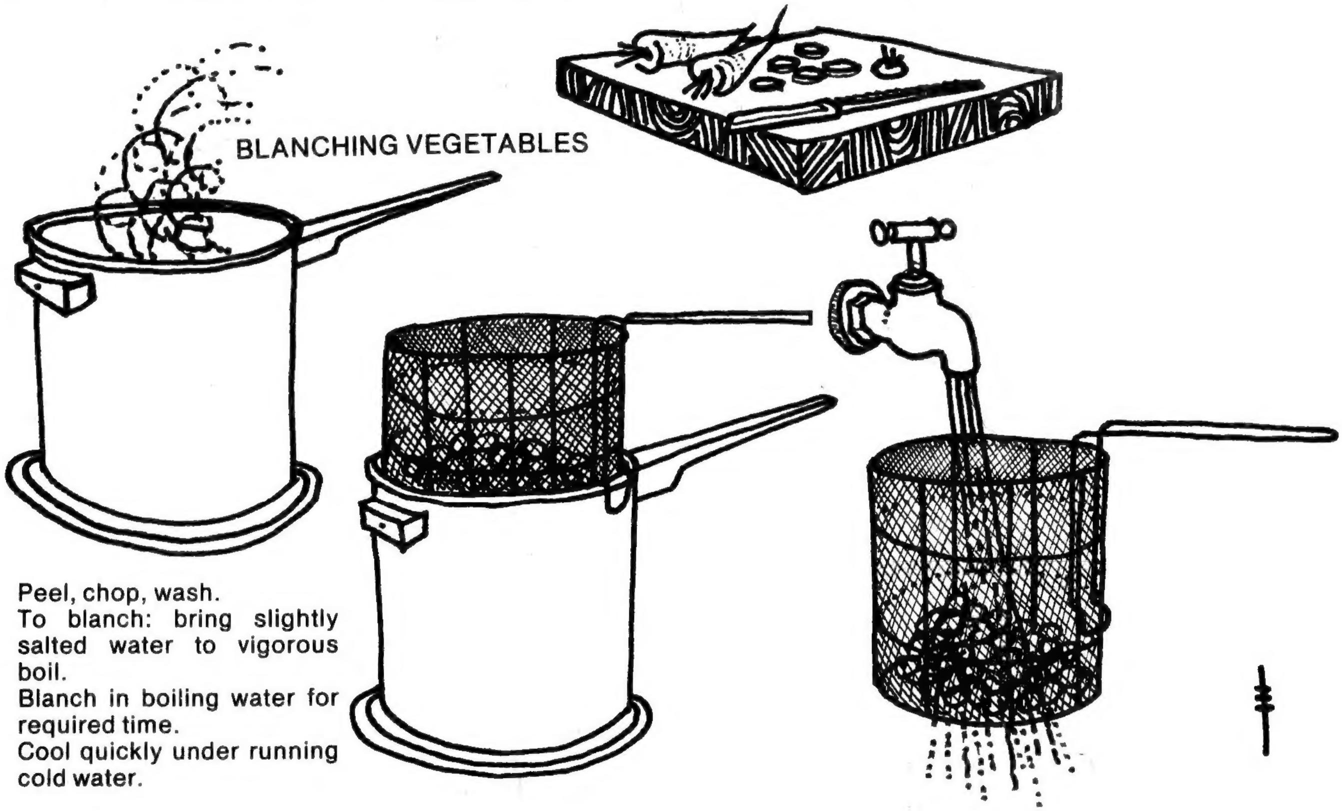
Plastic bags, with the air expelled and sealed with a wire tie or freezer tape, are ideal for storing vegetables in the freezer.

One method of blanching, probably the easiest , is to use a wire basket or cloth bag to hold the prepared vegetables.

You need a large container or pot, not more than half full of lightly salted water. Bring the water to a vigorous boil. Put the basket or muslin bag containing the vegetables in the pot. Bring the water to the boil again quickly, timing the blanching, which is usually between two to four minutes *(see blanching table).*

Allow at least 6 pints of water to each 1 lb of vegetables. Blanch only small quantities of vegetables at a time to ensure that the boiling water gets to all parts of the vegetables.

Cool the vegetables quickly to prevent further cooking by plunging them into iced water, or placing them under a running cold water tap. Drain well, pat dry, package and freeze.



BLANCHING VEGETABLES

Peel, chop, wash.
To blanch: bring slightly salted water to vigorous boil.
Blanch in boiling water for required time.
Cool quickly under running cold water.

PACKAGING

Place plastic bag into suitable container, like plant pot or bucket. Fill with vegetables.

Place filled plastic bag into container of cold water, which will force out the air. Then seal and freeze.

For best keeping results remove all excess air from packets of vegetables intended for freezing.

One way of doing this is to use a bucket or other large container of water *(see illustration).* Fill the plastic bag with cooled, blanched vegetables and put it into the bucket of water. The water will push out the excess air. Tie or seal the bag while it is still in the water. Label and freeze.

Cook frozen vegetables without thawing, using shorter cooking times a smaller amount of liquid than you would usually, until tender.

Fruit

Most fruit does not freeze well. Generally speaking, it's best to use excess fruit in jam, or to bottle them (see *Earth Garden 12*). There are exceptions, such as small fruits, juices and purees.

Small fruits like strawberries, mulberries, blackberries, raspberries and gooseberries, are frozen whole. Wash and dry them well, place them on a tray in a single layer, sprinkle them with a little sugar (if you like) and freeze them. The sugar helps to keep in the flavour and colour, but it is not essential.

When they are frozen and hard, put the fruit in a plastic bag, push out the excess air, seal and label.

Larger fruit must be sliced and prepared with sugar or a sugar syrup before being frozen. Results aren't always first class because the fruit sometimes goes soggy and loses colour and flavour.

Citrus juices — orange, lemon and grapefruit — keep well. A simple idea is to put freshly squeezed juice into ice block trays and freeze. When solid, the 'juice blocks' can be taken out and stored in plastic bags in the freezer. If the juice is frozen in plastic bottles or containers, remember that liquids expand on freezing and allow room for this.

Fruits, purees or juices which are frozen will keep for up to a year in the freezer.

Herbs

Pick herbs before the plant flowers. Wash, drain and chop, then freeze on trays and pack into airtight bags or containers. Or put chopped herbs into water and freeze in ice cube trays for use in stews and soups.

BLANCHING TABLE

PREPARING VEGETABLES FOR FREEZING

Always choose fresh, firm, good quality food plants.

Vegetable	Preparation	Blanching time
asparagus	Use tender tops & stalks only.	3-4 mins
beans, French or green	String if necessary. Remove tops and ends. Use whole or sliced.	whole, 2-3 mins sliced, 1 min
beans, broad	Shell and wash beans, which should be green and firm.	3 mins
broccoli	Wash, trim off outer leaves. Cut into pieces up to 6 in long.	3-5 mins, depending on size
Brussels sprouts	Wash firm, dark sprouts.	3-5 mins, depending on size
cabbage (as a cooked vegetable)	Choose firm heads. Wash & shred	1½-2 mins
carrots	Wash, scrape. Small carrots may be frozen whole, larger ones sliced, diced, or cut into cubes.	whole, 5 mins cut, 2-3 mins
cauliflower	Wash, break into flowerettes.	3-4 mins
celery	Frozen celery is not crisp. Use only for cooking. Wash, trim, cut into small lengths.	
corn, cob	Remove silk and husk. Wrap each cob separately. Thaw fully.	7-10 mins, depending on size
corn, kernels	Remove corn from cob after blanching.	
eggplant	Peel and cut into cubes or slices. Blanch, then dip into 2 pints water with ½ cup lemon juice. Drain, dry and freeze.	3-4 mins
mushrooms	Wash, trim and slice (unless very small). Steam blanch mushrooms for 3-5 minutes. Or fry lightly in butter and then cool and freeze.	3-5 mins (steam blanch)
onions	Slice or chop.	do not blanch
parsnips	Treat as for carrots.	
peas	Shell.	2-3 mins.
potatoes	Cut up as chips. Deep fry 2 mins, drain, cool and freeze.	—
pumpkin	Peel, remove seeds, cook until tender, cool and mash. Pack pulp into airtight containers and freeze.	—
spinach	Wash well. Cut off thick white stem.	1½-2 mins
tomatoes (for cooking)	Tomatoes don't freeze well. Juice, or cook and freeze tomato pulp.	—
zucchini	Wash. Cut into slices or strips.	3 mins

Some Freezing Tips

- It is best to thaw out all frozen food, except vegetables, before cooking, though this is not essential. Food that is already cooked may be taken straight from the freezer to the stove or oven.
- Do not refreeze food which has thawed, or partly thawed, except when it is in another 'state', for example, frozen raw meat or vegetables may be thawed, cooked and then frozen again.
- Some very strong, spicy flavours vary during freezing. Add garlic to food only after thawing.
- Remove the fat from stews and soups before freezing.
- Over-ripe fruit may be pureed and successfully refrozen.
- Excess salting of food makes freezing keeping time less (except for butter).

Using a freezer

By Maureen Leslie

We certainly find our freezer a most convenient time and money saver. The extra electricity needed to run the freezer is very small compared with the amount saved by being able to freeze surplus vegetables and meat bought in bulk.

And of course the greatest benefit is in knowing that the home-grown fruit and vegetables can be frozen almost as soon as they're picked, thus ensuring a constant supply of fresh, poison-free food throughout the year.

Vegetables

We peel, chop and then blanch them and then divide them into family size portions. We find that margarine containers are a convenient size for beans and peas and spinach while small ice-cream containers are better for Brussel sprouts, cauliflower, pumpkin and more bulky vegetables.

Fruit

We have only been in our house for one year, so our newly-planted fruit trees are not bearing yet. I preserve most fruit in **Fowlers** jars, but find that berries are great in the freezer. Blackberries and raspberries are fine just popped into margarine containers, but strawberries tend to go rather squashy this way, so I spread them on a tray, put them in the freezer until they're hard, then store them in plastic bags, which take up very little room.

It's a good idea to suck out the air from plastic bags through a drinking straw inserted into the bag. Close the opening quickly after you withdraw the straw.

We were given lots of apples this year. Not having much time, we simply cored them, but didn't peel them. We cooked the apples, then pureed them in the blender and stored the result in ice-cream containers in the freezer. So we have apple ready for sauce, pies, apple snow, apple crumble, or just for a quick dessert with custard.

Meat

We are very lucky in being able to buy locally raised and killed meat which we know has not been subjected to barbaric methods of raising and long, terrifying trips to the abattoirs. We kill our own roosters, pluck and draw them immediately in laundry tubs filled with hot water, then put them straight into the freezer.

We intend to slaughter and butcher our own sheep in future too, but at the moment we buy the rest of our meat in bulk. If I can possibly raise a fair bit of money at once, I buy a lamb, then a fortnight later a calf and about three weeks later a side of pork. When we've gone through about half of this lot, I buy a side of beef, so we have lots of variety.

As well as this, our daughter Michaela takes her ferrets out fairly frequently and presents us with fresh rabbits. She freezes the surplus and sells them locally for pocket money. Michaela also tans the rabbit skins and keeps them in the freezer (cleaned) until she has a good supply to work on at once.

About three times a year we go down to the fish markets and bring home a good supply of fish, which are quite cheap in bulk and freeze very well.

Other tips

We also freeze bread, cakes, pies, pate and casseroles. I always try to make a large batch of bread at a time and freeze a couple of loaves and some rolls. These rolls can be taken out and popped into the oven when needed, delighting and astounding unexpected guests with fresh, baked bread.

Michaela is a superb wholemeal pastry maker and makes delicious pumpkin and apple pies, about a dozen at a time.

Freezer produce also makes great gifts. When we're visiting friends in the city, they love to receive a pair of fresh rabbits, a pumpkin pie or a pot or two of pate. Saves a lot of time when you're getting away early for the drive too.

REFERENCES

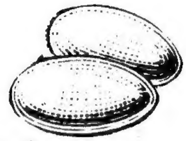
Home Freezing of foods

NSW Department of Agriculture, 1975, 45 page booklet, illustrated. Price 70 cents posted from NSW Department of Agriculture, Rawson Place, Sydney, NSW 2000.

A guide to using the home freezer

Department of Agriculture & Fisheries, South Australia, Special Bulletin No 3.72, 24 pages, illustrated. Price $1.40 posted from GPO Box 1671, Adelaide, SA 5001.

Both booklets cover freezing vegetables, fruit, fish, meat and eggs. Check with your own State Department of Agriculture also.



Freezing eggs

Eggs should never be frozen in the shell — the shells crack and the yolks become gummy. Shelled eggs may be frozen whole, or the whites and eggs separately. Pack in quantities to be used at one time. Ice cube trays, or patty-pan trays or individual paper cake-cups are convenient for one whole egg, two whites or two yolks. When little blocks are frozen, store them in plastic bags or containers.

From A guide to using the home freezer, Dept of Agriculture, SA.

The zucchini glut

By Rhonda Martin

Zucchinis are marvellous vegetables and their growing rate is phenomenal — small, tasty fruit one day and metre-long monsters the next, which trip you up or break your foot if you drop them! But even when they're large they still taste good.

I thought *Earth Gardeners* might be looking for recipes to use next summer when all their vegetables arrive at one time, particularly tomatoes and zucchini.

We only planted out six zucchini seeds in our garden to 'see how they go' and we were inundated for the rest of the year. And this was a drought year — lord knows what would have happened if it had been a good year.

We must have given away hundreds of zucchini. I know we ate about a tonne and people started eyeing us strangely as we wandered along with our arms full of these luscious vegetables, looking for someone to take them. They began running away from us, hurdling fences in Olympic style and slamming doors quickly, gagging at the thought of even one more zucchini.

So we steamed them, baked them, fried them, ate them raw, stuffed them with mince and anything we had handy. We wrapped them in bacon, chopped them up and mixed them with anything and everything. They were delicious too, but they were definitely too much of a good thing.

We used zucchini for stock fodder. The sheep turned up their noses, but the cow made a complete pig of herself over them and they made a handy feed supplement in this third year of drought.

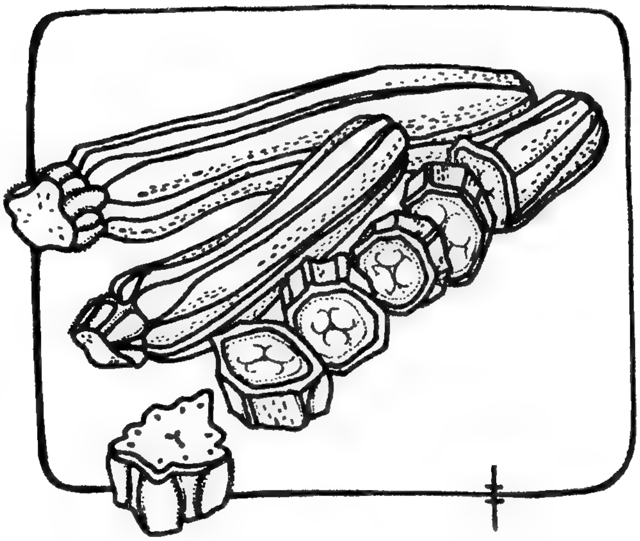
In this coming season, we reckon one plant should just about do us nicely. Yes, we did try to ignore the zucchini but, determined to be noticed, they grew so big that they were boring holes in the fence.

Then a lady took pity on us and gave us this great recipe for zucchini relish. It helped deplete the backlog, but we now have a pantry full of zucchini relish! But it goes like a train at school and fire brigade stalls. I only wish we could find an alternative to the sugar in it.

Zucchini relish
5 lb ground up zucchini (we use an old meat mincer)
4 large onions
4 green capsicums
4 red capsicums
2½ cups cider vinegar
4 cups sugar
4 tablespoons cornflour
teaspoon each of tumeric & nutmeg
2 tablespoons pepper

Put the zucchini, onions and capsicums through the food grinder, using a medium blade. Sprinkle with ½ cup salt and let stand overnight. Drain and rinse well with cold water. Mix together the remaining ingredients and bring to boil. Add the ground vegetables. Simmer for 30 minutes then ladle into hot jars. Makes about 7 pints.

We only had to fight the crows for our tomatoes and even after bottling them like mad as juice, pulp and halves, we still had more than enough to make this delicious —



Tomato chutney
6 lb peeled tomatoes
3 lb sugar
2 lb onions
small handful of salt
2 tablespoons curry powder
½ teaspoon cayenne pepper
3 tablespoons mustard
vinegar to barely cover quantity.

Cut up tomatoes. Cut up onions. Put *separately* in earthernware dishes. Sprinkle each with ½ handful of salt. After standing for a short time, boil *together* for one hour. Mix curry powder and mustard to a cream with a little vinegar. Put all ingredients together, barely cover with vinegar. Before removing from heat, thicken with a little flour.

Green tomato pickles
6 lb green tomatoes
2 lb onions
½ gallon vinegar
2 cups plain flour
3 lb sugar
2 tablespoons dry mustard
2 tablespoons tumeric
1 teaspoon ground cloves

Make a brine of 2 quarts of water to one cup of salt. Pour over cut up vegetables and leave it overnight. Cook in brine for about 10 minutes. Turn into colander and drain.

Boil vinegar and sugar, then mix mustard, cloves, tumeric and flour with enough cold vinegar to make a smooth paste and add to boiling vinegar and stir. When it thickens, pour over vegies and bottle cold.

Investigating the zucchini glut further, we turned up this recipe sent to us quite a few years ago by Lily Sislov of Montmorency, Victoria. Thanks Lily.

Zucchini with tomatoes

equal quantities of zucchini and tomatoes
onions
salt
oil or margarine
parsley, chervil or basil

Scrape skin of zucchini and cut them into cubes. Put into a basin and add salt. Let stand while you cut up tomatoes, chop up the onion and the parsley or other herbs.

Fry the onion till soft and golden (don't burn them!). Then drain off any matter that may have formed in the bottom of the bowl with the zucchini. Add zucchini to onions, mix well and stir over *low* heat while the zucchini get hot (about 1-2 minutes).

Then add tomatoes and cook on low heat for about 20 minutes. Remove lid for the last 5 minutes to evaporate excess matter. Add chopped herbs and salt to taste.

Don't add any water at any time. Zucchini and tomatoes contain sufficient water to cook themselves.

DRYING ZUCCHINI

By Ray & Jenny

At our place we had an excess of zucchini — sometimes up to ten fairly big ones at a time — and were faced with the problem of what to do with them.

They were organically grown (and lots of fun to grow) so we just couldn't let them go to waste. We got rid of a few by giving them away, but we still had a lot left. So, we experimented.

Drying zucchini

Drying zucchini is a good way of keeping them for the winter months. I'd slice zucchinis into fairly thin rings and then place them in the sun, on an old spring bed-base and cover them with net curtains.

If it was hot, they'd dry in one day, sometimes needing to be turned once. Once zucchini are thoroughly dried they will keep well. Hang them in the pantry, in an old flour sack.

They can be eaten dried, as they are, or cooked up. We found that young zucchinis tasted great eaten raw, like carrots, or grated up and added to a salad.

You can also dry zucchini in an oven by spreading slices thinly over trays at a temperature of 120°F for 18-24 hours, or until they are crisp. Turn slices once or twice.

Our favourite zucchini recipes:

Curried zucchini

Saute an onion and as much garlic as you like in vegetable oil. Add vegetable salt and curry powder to taste, then add cubed zucchini. Place the lid on the saucepan and let the mixture cook *slowly* in their own juices. Far out!

Stuffed zucchini

Lightly cook smaller zucchini, slice in halves and scoop out the centres. Mash the centres and add lightly cooked onion and garlic (cooked in oil), tomato paste and sesame seeds. Stuff back into the plants and grill.

LEAFLETS ON FOOD STORAGE

CSIRO Consumer Service

Free — from Consumer Liaison Section, CSIRO Division of Food Research, PO Box 52, North Ryde, NSW 2113.

Storage Life of Foods, 3 pages. Covers frozen, canned and dry foods.

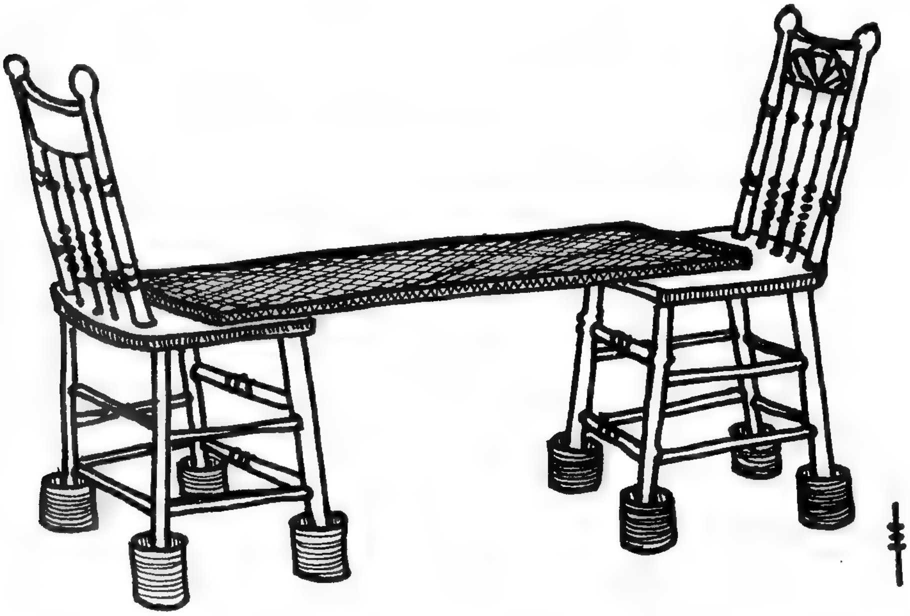
Handling food in the home, 4 pages. Brief guide to shopping, storing foods and avoiding food poisoning.

Citrus Juices — how to preserve your own, 3 pages. Briefly details hot and cold fill methods, freezing and chemical preserving*.

Other leaflets are available on milk and cheese, and seafoods.

(Suggested by Vic Calthorpe)

***Property preserved citrus juices retain about 90 per cent of their Vitamin C after six months at room temperature in temperate climates, and after two years under refrigeration.**



A good way to stop ants getting on to your food plants when you are drying them is to place your drying trays on two chairs. Put a tin of water under each chair leg, making sure the legs are surrounded with water and make no contact with the tins.

In this way we have dried bananas, apricots, peaches, zucchini and apples — *with no ants and no additives!* We did not dip the fruit in any solutions, but just used the sun to dry them. The bananas go fairly black, but are just beautiful. The only condition is fairly consistent hot, dry weather.

— Ray & Jenny.

DRYING FRUIT

by Marjorie Spear, Harmony Farm, Kuranda

Drying conditions in North Queensland may differ from other parts of Australia, but for success the basics are warmth and air circulation. Humidity is bad so, though I can sometimes use the sun, I more often use my small electric dryer.

Dried food, because it is concentrated by removal of water, has more nutrients than the same weight of bottled or deep-frozen food. But beware of store-bought dried fruit, unless you are content to eat some chemicals.

Dried fruit will keep for a year if it is stored in a cool, dry spot. I always store my fruit in glass jars. You can then see if there is any condensation on the glass. If there is, take out the fruit and dry it some more.

After a week stored in glass, you can, if you are short of jars, pack dried fruit into brown paper bags and then into airtight plastic bags. You can also use a dessicant like *silica gel* to absorb any remaining moisture, but I never bother with this.

Instructions accompany the electric dryers, but these are a few hints from my own experience.

- Do not overheat at first as that tends to make the fruit hard outside and soggy inside.
- Cutting into thin slices is often advisable.
- Juicy fruits must be dried for 12 hours on plastic food wrapping and then finished off on gauze (fibreglass flyscreen is best).
- To retain the flavour of juicy fruit, the fruit must not be over-ripe.
- Bananas are very easy to dry, after skinning.
- Peaches should be halved and placed skin down.

Pawpaw and pineapple will not taste like the product you buy at the shop because the commercially dried fruits have been sugared. The sugar is absorbed into the fruit and is not visible.

As a guide, about 6lb of fresh fruit will make 1lb of dried fruit. For faster drying time and to make fruit less tough, cut across the fibre and spread pieces of fruit in a single layer.

You can use a tiered clothes dryer, suspended from your washing line, for sun drying fruit, but remember to cover it with muslin for protection from insects.

It is important to *season* dried fruit. After cooling, put into a large, cloth-lined container. Stir or shake every few hours. After two days it is safe to put the dried fruit into glass jars.

When drying, you must turn the fruit every few hours.

Sun drying usually takes three days, but may take longer. My electric dryer, which uses very little current, usually takes 24 hours, which includes night-time drying.

I am sorry I have had no experience at using a solar dryer. I would love to hear details of an efficient home-made or commercial solar fruit dryer.

My experience has been mostly with drying fruit, including mango and citrus peel (cut into thin strips). I have successfully dried potatoes, peppers, pumpkin, beans, celery leaves, onions, shredded carrots, cucumbers (unskinned) and corn. Grapes, bought when cheap and off the bunch, make cheap raisins or sultanas.

I think home drying is the best, easiest and most economical way of storing a surplus for the lean months. I prefer sun drying, or using my electric dryer, to drying in the oven, which presents a few problems.

I buy grapes because I like some dried for my fruit cakes. Everything else is organically grown in my garden or by friends. Organic fruit often has a bad spot, which is easily discarded when you cut up the fruit. The rest of the fruit is full of flavour.

Strange to say, I have had city dwellers visit me who (to my horror) thought a banana or a mandarin with a soft spot was only fit for the compost heap.

Bananas/pineapple/mango

By Fay & Tony Page

We have had really great success with sun drying our home-grown bananas, also pineapple and Bowen Special mangoes.

We made a big bamboo frame and stretched some prawn netting over it. Bananas took a couple of days and pineapples about four days. They are keeping 100 per cent.

Apricots

By John Marsh

We used information from the Fact Sheet on Fruit **drying at home** from the Department of Agriculture and Fisheries, SA, to dry apricots and found the metabisulphide method much easier than the old way of burning sulphur. We dried nearly 90kg of fresh apricots (obtained for free from a lady who complained about having to rake up and bury so much fruit each year!) and now have about 12kg of dried apricots.

Not only was there a great deal of satisfaction in doing the drying ourselves, but our cost was about 35 cents a kilo, compared with $6 retail. I'm now in the process of swapping some of the dried apricots for fresh peaches, some of which I'll dry.

DRYING LEAFLETS

Fruit drying at home, Apples, figs, prunes, Fact Sheet 130/77.
Fruit drying at home (Kamaradin), F.S. 131/77.
Fruit drying at home (vine fruits), F.S. 132/77.
Home drying of vegetables, F.S. 113/76.

These two-page Fact Sheets are available from the Department of Agriculture and Fisheries, South Australia, GPO PO Box 1671, Adelaide, SA, 5001.

Many of these leaflets include chemical dipping to hasten drying and improve colour

Up to 10 *Fact Sheets* may be obtained free with no postage charge.

Preserving memories

By Maggie Ragless

Knocking almonds at "Wattiparinga" in the 1930s. From left, Gordon Ragless, Dick and Jack Lockyer, C. C. Ragless and Master Chamberlain with the basket.

Knocking Almonds

A hurdy-gurdy of the 40-year-old seedling loquat tree
Making a wish on the first apricot for the season;
Canopy of a trio of fig trees;
Peeling the sunrise-coloured peach skin to taste the freshness of the morning.
Emu picking up the almonds on hot summer mornings;
Almonds that stick and won't come off;
Aching arms, stiff neck and sunburnt face;
All in the control of the end of the 20 foot pole;
From knocking almonds.
Sunset of a season coloured in the falling autumn leaves;
Perfume of quinces filling the air on damp autumn evenings;
Evening glow on the trunks of the orange trees.

Maggy Ragless

These are but memories crystallised into preserved fruits of the season.

Three acres of century-old fruit garden planted on the ancient alluvial flood flats of a small winter creek, are now but a pipe drain under an expanse of asphalt.

That experience was 10 years ago, when industry was expanding into pockets of rural land that had escaped the post-war suburban sprawl. Since *'Wattiparinga'* was reduced to a street house and one of a number of 0.3 hectare blocks in a 'light industrial' area, a small selection of fruit trees have been planted around the house. This has maintained a supply of produce that has enabled us to continue a degree of self-reliance — a necessity in the face of continual rises in rates and taxes.

The cellar, verandah and wood stove are utilised with great efficiency in the process of preserving, drying and storage. It isn't a good idea to keep preserves for more than a year, as they lose their flavour and the dried fruit becomes increasingly vulnerable to the dried fruit caterpillar. Of course, dried fruit can always be soaked overnight and stewed with a bit of spice the next day to be eaten as a dessert.

Two 50-year-old macadamia nuts keep us in nuts in place of the almonds that we once enjoyed extravagantly.

The district was well known for its almond growing, with several varieties evolving from the area. The *Chellaston* is still a popular variety, being a small tree but able to carry a large crop. Around 1914, my grandfather cultivated another variety that he named *Selgar*. This was a cross between the older *Brandis* variety and the *Chellaston*. Its most outstanding feature was that the almonds would remain on the tree no matter how windy it was — all very well until we came along to knock them off!

Nuts are versatile in their presentation for eating. They can be eaten freshly cracked out of the shell, like lollies. Evidently my grandfather always carried a pocket full of almonds to eat along the way, or to chew during conversation, when others may have smoked. He swore they kept arthritis away in his old age.

Macadamia nuts are inclined to go rancid if they are out of their shells for more than a week or so, but they will keep much longer if they are roasted.

Ground roasted nuts over desserts, or mixed with a bit of spice as a cake topping, add a flavour that possibly only those who grow nuts can afford to taste. Nuts dipped in chocolate or toffee are delicious and nothing is nicer than brown-tipped almonds to decorate a cake.

Unless you have frozen macadamia nuts before cracking them, there will no doubt be a number of broken pieces. These can easily be browned up in the oven as they contain a lot of oil. Add a few almonds or other drier nuts and wind them through a mincer to produce nut paste (see *The Mincer,* EG25, page 214). This can be used in the same way as any other spread, or as a filling in dried apricot halves, topped with a piece of cherry.

Any of the stone fruits can be dried or crystallised to be enjoyed later when you are away from home or when the fruits are out of season by using these recipes.

Crystallised stone fruit

Make a syrup using ½lb sugar to ½ pint of water. Boil for ½ an hour. Drop cut fruit with stones removed into the boiling syrup and stand aside until next day.

Bring to the boil and again stand aside until the next day. Repeat this process for four days in all.

When cool, lift the fruit out carefully and spread on large plates or trays to dry. This process may take a week to dry, but it depends on the weather. After the second day, turn over each day.

Sprinkle with sugar if you like and store in airtight jars. As a guide 6lb of sugar will do 12lb of fruit.

The syrup may be used several times, but each lot will be a little darker. Finally, the syrup can be used over ice cream, or to flavour custards, icings and so on instead of adding so much sugar. Meanwhile store it in the refrigerator.

Drying stone fruit or apples and pears

Peel and stone, or core, the fruit. Cut into slices. Drop into a solution of 1oz of sodium metabisulphate and ½ gallon water. Leave it in solution for ½ an hour. Lay the pieces out on a plastic-covered tray to dry for three to seven days (depending on the weather). Bring in out of the cool night air each night.

Heat both the container and the dried fruit and, while hot, pack into airtight jars. The solution may be used several times, but the fruit may have to stay in a little longer.

One year when we had nectarines out drying they became sprinkled with pollen and petals from a nearby gum tree *(Eucalyptus microcarpa),* giving the dried result quite a pleasant, unusual, Australian flavour. Haven't timed it right since!

Unmarked citrus skins can be kept by crystallising them, but care must be taken to dry them out thoroughly or they will go mouldy. Nothing bought at the shop can quite compare with the flavour of homemade mixed peel in cakes and toppings, dipped in chocolate or eaten as it is.

Crystallised citrus peel

6 large citrus, thick skins
100ml glycerine
6 cups sugar
6 cups water

Wash citrus skins and cut away any flesh from the rind with a heavy teaspoon. Cover skins with cold water and bring to the boil. Boil for 10 minutes.

Drain, then repeat this process four times. Cool skins. In a large pan, combine sugar, water and glycerine. Heat and stir until sugar is dissolved.

Add citrus peel and bring to the boil until the syrup is of medium thickness.

Let peel stand in syrup for 24 hours, turning now and then.

Bring syrup and shells to the boil again and boil until the syrup is thick, turning peelings over several times to prevent scorching.

Remove citrus peelings from syrup and lay on a cake rack over a plate until cold and allow to dry for a couple of weeks. Syrup may be used several times again.

As the result of my appeal in *Our fruit garden,* back in EG19, our old raisin seeder is now back in action, enabling us to retain the raisin flavour without crunching on the seeds when enjoying a scone.

Maybe these ideas will encourage you to preserve your fruit and nut surplus in other ways, instead of the usual bottling and jam making. Fruit and nuts prepared this way are always a most acceptable present and a way of sharing a season with your friends.

Making the most of an orange

by Liz Lewis

Often at this time of the year we have heaps of citrus fruits and run out of ideas for using the extra fruit.

To make the most of an orange you can juice it, jam it, jelly it, or just eat it raw. This goes for any type of citrus fruit.

If you are fed up with marmalade, why not make a cordial?

Citrus cordial

5 pints juice, in which has been dissolved 8lbs sugar, or the equivalent of honey.

Add ½oz citric acid and ½ gramme of sodium metabisulphate, also one bottle of lemon essence. I've made it without this and it tastes good, and seems to last just as well.

To use, dilute to taste. No need to store in refrigerator.

What about the orange peel?

Rub cubes of sugar over the peel to absorb the oil. Store in an air-tight jar. Use for flavouring custards and in baking, or —

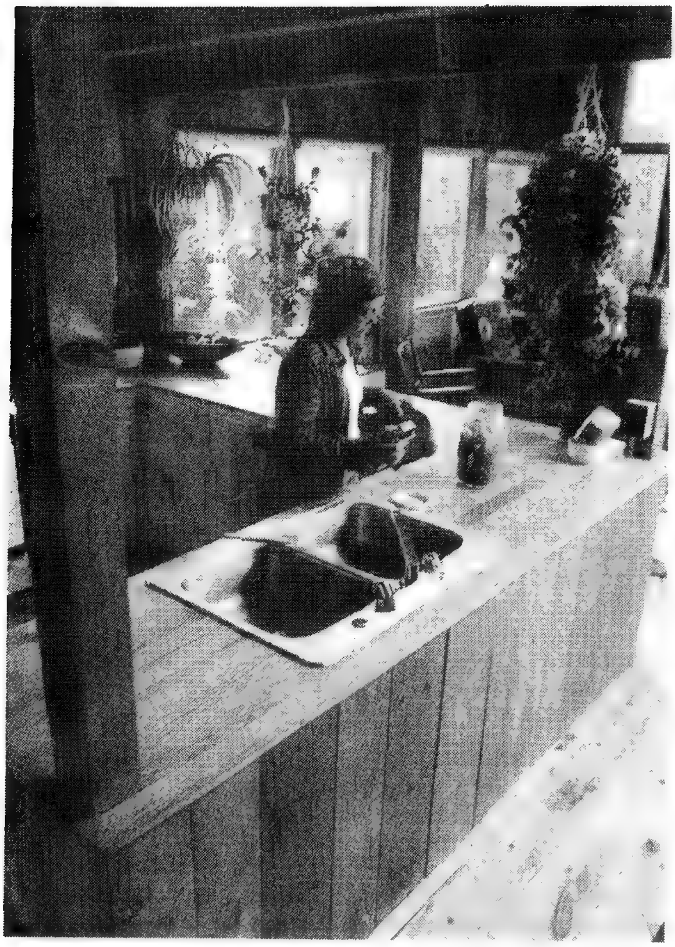
Candied peel

Place several cups of sugar in a pan and moisten. On low heat melt the sugar, put in as much cubed peel as can be covered by the syrup and heat gently until the peel becomes clear. Dry the peel in a warm oven or in the sun. Very nice to eat as it is, or use for baking.

They say citrus peel can be used for feeding stock, but I've never tried it.

Have you tasted the giant Bengali citron? As big as a bowling ball, it tastes like sweet pink grapefruit — each segment is a meal. They are being grown experimentally in Australia, but you can often find them in River Murray growing areas.

FOOD BOOKS



Build Your Harvest Kitchen * * *

Edited by William H. Hylton, Rodale Press, Emmaus, Pennsylvania, 1980, large hardback, 780 pages, illustrated. Price $26.95.

This big, comprehensive book begins with your dream of a kitchen, then it tells you how to turn it, step-by-step, into a reality.

It will help you plan, design and build a kitchen, or remodel one, in which home grown foods may be cooked, prepared, preserved, baked, frozen or stored. It considers all the essentials such as work space, storage, practical functions like heat, water, light, and the feeling and atmosphere you need in a *working* kitchen.

This isn't a cheap book, but it is so thorough, so useful, and so full of ideas, plans and helpful illustrations, that we think it would be an investment for anybody planning on building their own home or kitchen.

Its first section contains a set of basic working courses in trades like cabinet making, designing, plumbing, electric wiring (though regulations will differ here), tiling floors, lighting, building doors, windows and walls. Nothing is forgotten, down to complete instructions on what tools to use, how to use them and what materials to select — timber predominates.

There are plans for 13 kitchen cabinets and a colour portfolio of various types of timber kitchens, one built by kids, one a "no frills" kitchen, another the cook built and a rather elaborate "antique" country kitchen. The small details are covered too, such as building a cabinet drying rack, a tray table, window greenhouse or food dryer. Great!

Distributed in Australia by Australia & New Zealand Book Co Pty Ltd, Frenchs Forest, NSW.

Stocking Up

How to Preserve the Foods You Grow, Naturally

Edited by Carol Hupping Stoner, Rodale Press, Emmaus, Pennsylvania, 1977, large hardback, 532 pages, illustrated. Price $18.95.

This is another product of the Rodale Press, written by the staff of *Organic Gardening* magazine, the result of much testing in their research centre and a revised and expanded version of the original 1973 edition. It's *thorough!*

It covers every aspect of how and when to harvest home grown food and how to store and preserve it in every way imaginable. Of the many books in the field, this is *the* book for anyone who wants to regularly use and preserve their own fruit, vegetables, meat, poultry, fish, grains, nuts and dairy products.

All the old-time skills of "stocking up" are covered, with some 300 recipes for jellies and jams made without sugar, pickles, saltless sauerkraut, cider and vinegar. The new methods are there too, such as making butter in a blender (even from goat milk).

For most activities there are a variety of methods. For example in cheese making, you are given enough ways to make soft, hard, semi-hard, smoked, Greek, ricotta, cream, cottage and cheddar, to keep you experimenting for ages.

There are sections on sprouting, home made ice cream, building a smokehouse, storing eggs and an excellent coverage of underground vegetable storage with plans, photos and "exploded" drawings. The chapter on meat covers choosing your animal, how to butcher, cut, store, freeze, cure, smoke, or can it and how to make lard, sausages and "headcheeses".

The cloying Americanisms are irritating at times and the list of equipment suppliers is for the United States, but these are small negatives in such a useful and comprehensive book. If you build your kitchen according to Rodale's *Harvest Kitchen,* then stock it with this guide, you will be guaranteed a healthy, well-fed family and hundreds of tasty dishes from your own food resources.

To make a sprout powder or flour for baking, thickening soups and gravies, and adding to casserole toppings, dry the sprouts first and then grind them in a blender. Stay away from bean sprouts, though, because their high oil content doesn't make them good drying and grinding candidates. Store the sprout powder in a cool, dark place in an airtight container.

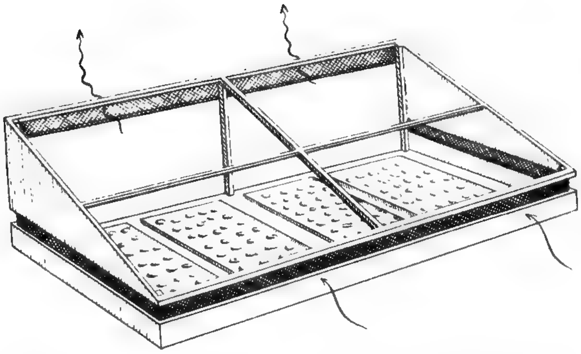
Putting Food By

Ruth Hertzberg, Beatrice Vaughan, Janet Greene, Bantam Books, New York, 2nd edition, 1976, paperback, 565 pages, illustrated.

This is not as comprehensive as *Stocking Up,* but still a wide ranging and useful guide to preserving food, including canning, freezing, bottling, drying, curing and storing fruit and vegetables, with some coverage of meat, poultry and fish.

It's especially good value at the price — whatever that is. We bought the Bantam paperback new at $2.95 and, more recently, the original Stephen Greene Press 1973 edition for $1.75 second hand, so take a look around the second-hand bookstores.

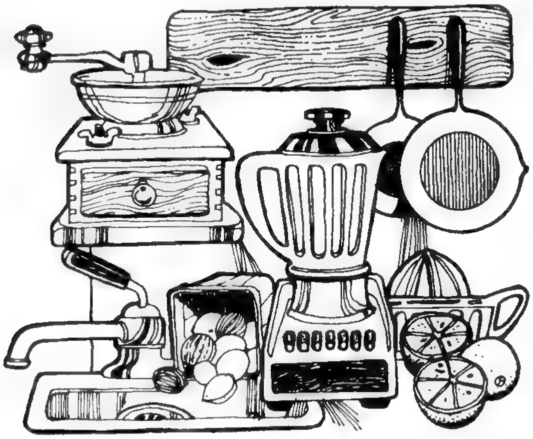
There is a very good introduction and explanation of why foods spoil, how bacteria works and how the various preserving methods counter this. Explanations are clear, easy to follow and the photos are helpful.



A solar dryer

For small-scale drying outdoors with plenty of sunshine but higher humidity than is desirable for drying in direct sun, you can put together a dryer that looks, and acts, much as a coldframe does (see sketch).

The tilted glass panel — one or more pieces of storm sash are fine — intensifies the heat from the sun, and this rise in temperature inside lowers the relative humidity correspondingly, so that drying occurs faster than is possible outside the dryer. The ample screened venting allows circulation of air. This dryer is not effective on overcast days.



Many people feel they need some sugar in their diet to provide energy. If you were to completely eliminate all white sugar from your diet and eat a variety of fresh fruits, whole grains, vegetables, eggs, meat, nuts, and milk, you would still get the equivalent of close to two cups of sugar a day from natural sources, more than enough for bodily functions. There is no dietary need for white sugar at all.

Eating Better for Less

A Guide to Managing Your Personal Food Supply

Edited by Ray Wolf, Rodale Press, Emmaus, Pennsylvania, 1977, large paperback, 467 pages, illustrated. Price $11.95.

There's something in this book for almost everybody, from inner city dwellers to farmers, from fast food freaks to organic and health minded people.

It's packed with information on food, beginning with a critical look at eating habits and diet patterns in the USA (but the same certainly applies here) and recommended ways of improving them. It takes a look at the basics of nutrition in a simple, direct style and continues with the ways to eat better, like growing your own food, improving your diet and turning your kitchen into a food processing centre.

There are useful handy hints, suggestions and recipes throughout, with many topics covered briefly but adequately, including food plants, freezing, harvesting, preserving, drying, ethnic cookery, yoghurt, bread, buying the best foods, food values and livestock. You can save a lot of money by knowing how to plan your eating efficiently. Here's how.

Stocking Up and *Eating Better for Less* are distributed by Australia & New Zealand Book Co Pty Ltd, PO Box 459, Brookvale, NSW 2100. Send sae for postal prices.

The Gypsy Cookbook

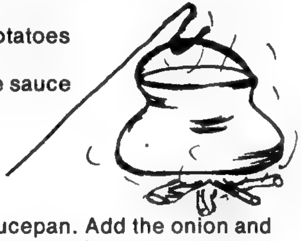
Rosemary Lee-Wright, Wentworth Books, Sydney, 1978, paperback, 96 pages. Price $3.95. Distributed by Second Back Row Press, PO Box 43, Leura, NSW 2781. Add 60c postage.

Rosemary Lee-Wright who now lives in Australia, is the daughter of a Gypsy father and a *Giorgio* (non Gypsy) mother. Her collection of recipes is interspersed with appealing drawings and garnished with snippets of Gypsy lore.

Dishes include venison casserole, goats meat and carrot, *Hotchi Witchi* (hedgehog), rabbit and pork, leek soup, greasy beans, *Nammit* (Gypsy packed lunch) and *Poggado Gabben* (or no bake cake) "ideal for the Australian Christmas". Gypsy food is tasty, easy to prepare and suitable for outdoor eating.

Potato soup

This delicious potato soup originated among the Gypsies who travel in Ireland.



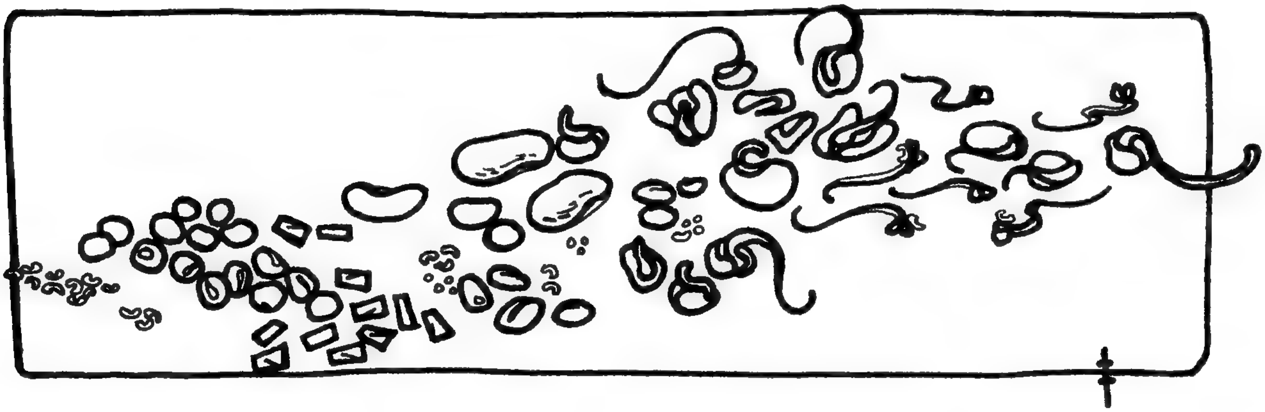
3 cups of cooked mashed potatoes
½ cup cooked celery
2 teaspoons Worcestershire sauce
1 small onion sliced
1 cup of milk
1 cup of water
2 tablespoons butter
1 cup cooked diced bacon

Melt the butter in a thick saucepan. Add the onion and celery and fry until tender. Remove from the heat and blend in all the other ingredients except the bacon.

Re-heat to boiling and simmer for 2 minutes.

Serve hot with bacon sprinkled on top.

All about sprouts



Sprouts are crisp, fast, natural, cheap, nutritious, fresh, tasty and easy to grow at home in the kitchen, or in a camper van or rucksack when you're travelling.

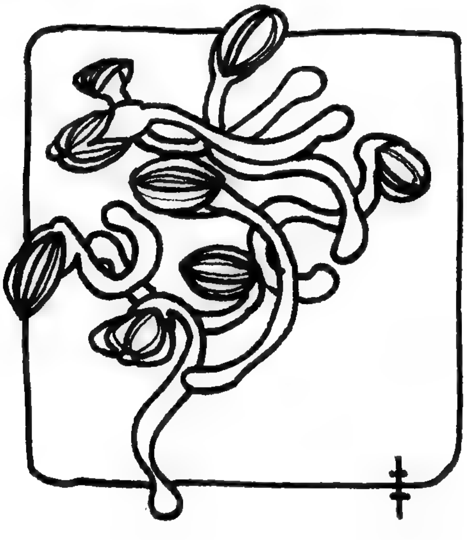
You can use them raw in sandwiches, mixed in salads or muesli or juiced; stir fry them in a wok with other vegetables or add them to omelets, rice dishes, baked loafs, stews, casseroles, soups, and biscuits for extra taste and "crunch".

Just about every book on natural foods has a section on sprouting seeds of grains, legumes or vegetables, with their uses. Sprouts ensure a steady supply of greens all year with little trouble. They are rich in amino acids and vitamins, especially B, E and C and provide trace elements in natural forms.

Sprouts to grow and eat

Sprouts to grow and eat, by Esther Munroe, is a 122 page paperback entirely devoted to sprouting. It has more than 150 recipes for sprouts — just in case you ever run out of ideas on how to use them!

The book costs $4.95 in bookshops, or add 60 cents postage to order by mail from Second Back Row Press, PO Box 43, Leura, NSW 2781.



Sunflower seed sprouts ready to eat at about four days.

SEEDS TO SPROUT

Mung beans, adzuki beans, alfalfa, fenugreek, wheat and lentils are the most popular sprouts and give the best results, but almost any vegetable seed, grain or legume is suitable for sprouting, except potato and tomato, which are toxic.

Try unhulled sunflower seeds, sesame, millet, rye, cress, clover, oats, barley, buckwheat, corn, radish, chickpeas or most kinds of peas, beans or nuts.

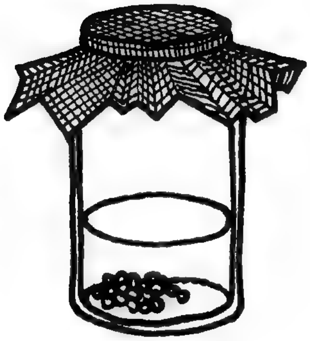
Soybeans make delicious sprouts, but the seeds tend to ferment in humid weather, so they should be kept in a cool place (in contrast to other sprouts) and rinsed thoroughly and regularly to prevent the growth of fungus. Soy sprouts are ready to eat when they are 1 inch in length and are best steamed or boiled for 10 minutes before eating.

Buy seeds for sprouting from health food and bulk stores, in packets prepared for sprouting sold by seed companies like Thompson & Morgan, or from Asian shops. In Chinese groceries the "green" beans are mung beans and the "red" beans are adzuki beans. *Do not use seeds treated with chemicals or fungicides.*

When sprouted, seeds rapidly increase in bulk. As a guide 1lb of mung beans will yield 6-8lb sprouts, ½lb sunflower seeds gives 4lb of sprouts and 3 tablespoons of tiny alfalfa seeds will give 2 quarts of sprouts.

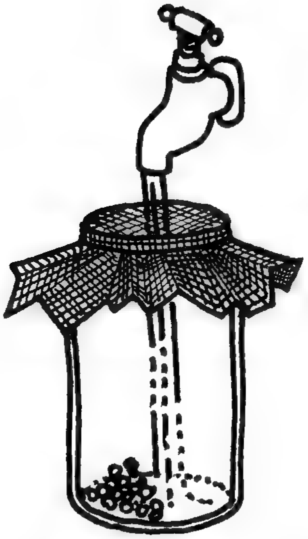
Most sprouts are ready to eat in three-to-five days, especially in our humid coastal summers. It takes a day or two longer in cooler weather. Mung beans, alfalfa, lentils and peas are ready to eat when they're two-to-three inches long. Grain shoots, like buckwheat, are more palatable when they are shorter, while sunflower seeds develop a sour taste when the sprout becomes longer than the seed.

Sprouts are best eaten while still fresh and sweet, when they are about ¼-½-inch long. We like to place our sprouted seeds on the windowsill in sunlight for a couple of hours before we eat them. This injects them with chlorophyll and improves the flavour, but too much sunlight (more than a day in indirect light) will toughen the sprouts.



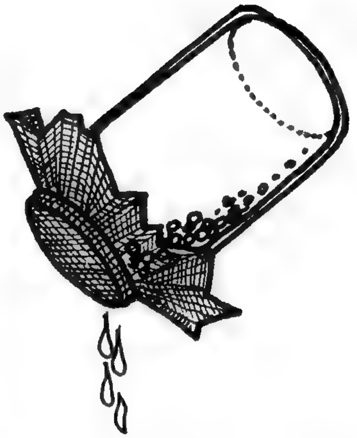
1. Soak

Use a glass jar with a piece of gauze, muslin or nylon netting fastened over the mouth with a rubber band, or a screw-top jar with holes punched in the lid. Rinse ¼ cup of seeds in water, then soak in warm water in the jar overnight (or for 8 hours).



2. Rinse

Pour off the water used to soak the seeds — it may be added to soups or used to water kitchen plants. Rinse the seeds under the tap. You will see that they have already swollen greatly in size. Discard cracked, mouldy or discoloured seeds.

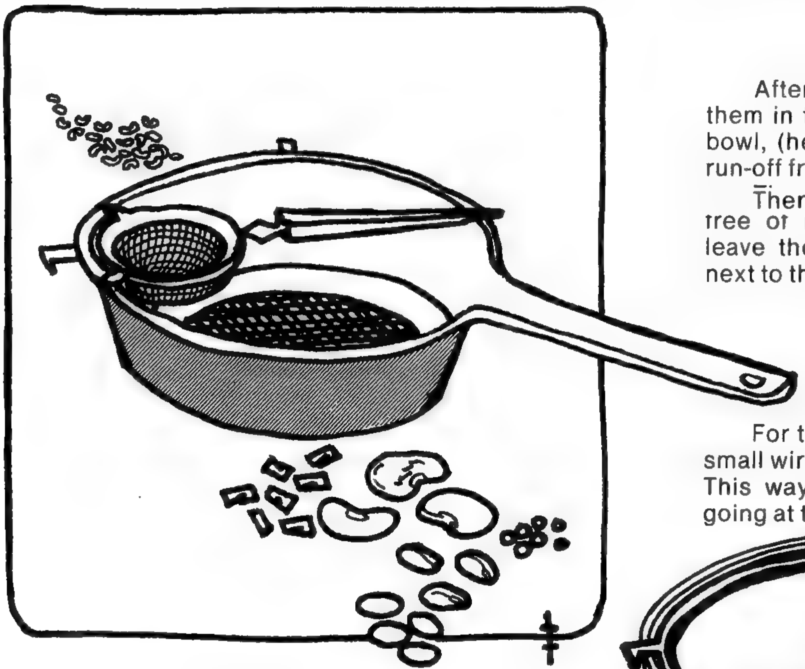


3. Drain

Drain off the water, tilting the jar to make sure that all the water is out. If wet the seeds will rot. Rinse and drain 3-4 times each day. Store in the jar with sprouts in a warm, moist place — the cupboard under the kitchen sink is good.

4. Sprouts!

Most types of seed are sprouted and ready to eat in 3-5 days (though it takes longer in winter). They will keep fresh for up to five days in the refrigerator in a jar, plastic bar or sealed container. When frozen they lose their crispness.



OTHER METHODS

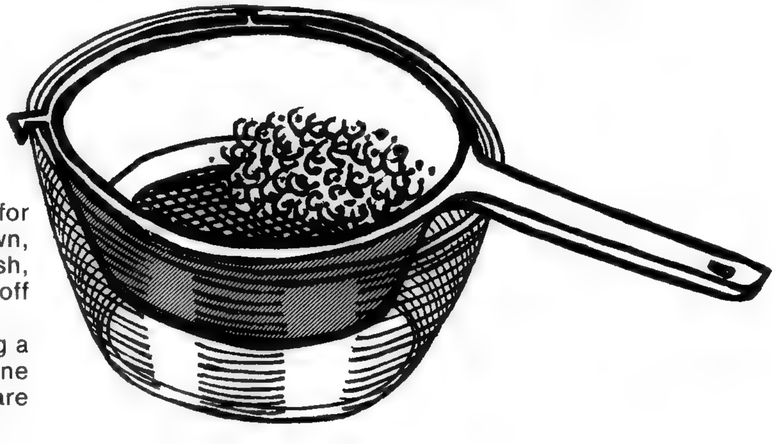
There is no need to buy special equipment for sprouting. You may use the glass jars as shown, earthenware flower pots with the hole blocked, a dish, plastic bag or cup — as long as you are able to drain off the rinsing water thoroughly.

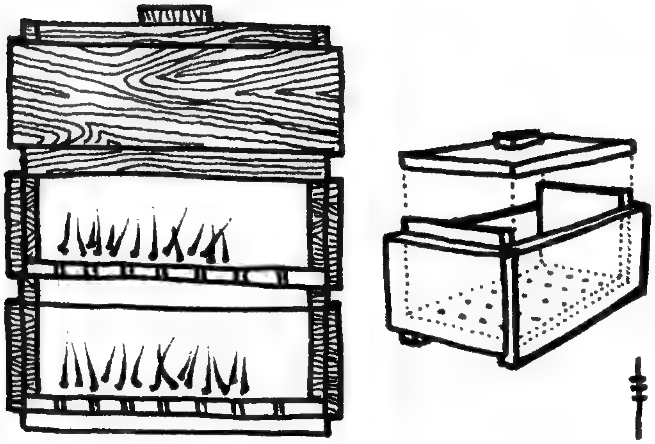
For more than 10 years now we have been using a cheap plastic strainer (or colander) like the one illustrated here. It cost us about 35 cents and they are still about 60 cents in chain stores and supermarkets.

After soaking the seeds overnight in a cup we put them in the strainer, which usually rests on a porridge bowl, (here it is resting in a glass bowl) to collect the run-off from regular rinsing.

There's nothing else to do. As now our kitchen is free of rodents, cockroaches and other vermin, we leave the strainer and sprouts on the kitchen bench next to the sink.

For tiny seeds, like alfalfa and fenugreek, we use a small wire strainer resting on the bigger plastic strainer. This way you can have two lots of different sprouts going at the same time without any extra trouble.





WOODEN BOX SPROUTERS

Wooden box sprouters, stacked in tiers, are used in Asia to sprout several different types of seeds at the same time.

The boxes are dovetailed so that three, four or more sprouters may be fitted one on top of the other. The usual size for each box is 6 inches long x 3 inches wide x 3½ inches deep. They may be made of pine or plywood treated with a waterproof paint.

You can either drill small water drainage holes in the wooden bottoms of the boxes, or tack in a bottom of nylon or wire flyscreen netting. A wooden top is needed for the top box only, while the bottom box must rest in a tray for drainage.

Water the seeds through the sprouter boxes from the top, but be sure to change the position of the boxes every now and then.

For a nutritionally complete meal, use one box each to grow sprouts of alfalfa, sunflower, mung beans and lentils. Mix them up as a salad and serve with lemon juice.

INDOOR TRAY GARDENS

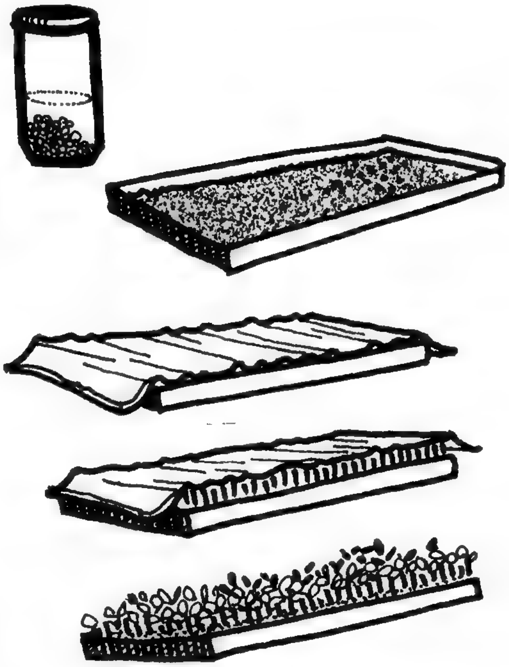
1. Soak seeds of wheat, buckwheat, alfalfa, unhulled sunflower, fenugreek, cress or mustard, for 12 hours.

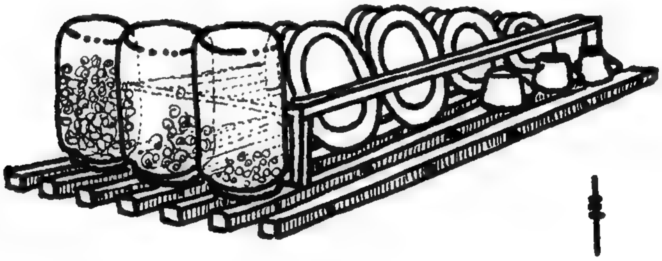
2. Fill a flat tray, shallow dish, window box or baking pan with a one inch layer of a mixture of soil and compost, or of vermiculite or peat moss mixed with soil. Wet soil thoroughly and spread a thick layer of seeds on top.

3. Cover with six-to-eight layers of wet newspaper, then a plastic sheet on top to keep in moisture. Lightly water the trays morning and night, but don't let the seeds stand in pools.

4. In about three days the seed growth will begin to lift the newspapers. Allow the seeds to grow to about 2½ inches.

5. Remove the newspaper and plastic sheet and place trays in the sunlight until the grassy salad sprouts are about 6 inches high (about four more days). Scissor off the raw greens.
6. Eat and enjoy!





This kitchen rack for plates, cups and jars of sprouts was the idea of Sondi Stankov. It is mounted to the wall above the sink drainage area.

Fireless cookers

The hotbox is a fireless cooker. It works in the same way as a *thermos* flask, retaining heat by insulation.

Once a pot of soup or stew has been brought to the boil, it is placed in the hotbox, where it continues cooking for several hours without using any further energy.

This slow cooking method is ideal for dishes like soups, stews, porridge, rice, grains and casseroles. You can also use it to keep water or cooked food warm and to make yoghurt.

Haybox cookery saves money because it saves fuel. It's handy also because it will cook your meal while you are away from home — not a bad idea for a night-shift worker!

In its traditional form, invented by Norwegian peasants, it was simply a container of food packed into a box of hay in a tea chest and was called the *haybox.* In pioneering days it was used by shepherds and cattlemen in the United States to cook meals while they were away from camp all day and it got the nickname *"the wooden wife from Wyoming"*.

The haybox was widely used in Britain during the First World War when fuel was scarce. A double-saucepan model called *The United States Fireless Cooker* was manufactured in 1914 and a modern type, called the *Hot Box,* is now made commercially in Britain.

In whatever version, the hotbox gives slow, even cooking, which will make even cheaper cuts of meat and tough old fowls tender and palatable. Using this method there can't be any overcooking, boiling over, burning, drying up of food or scorched pans to scrape and clean.

Food is cooked in the saucepan or casserole dish on your stove until it boils, or between one-third to one-half the usual cooking time, then transferred to the hotbox with the lid still sealed. The hotbox is closed and the food is left for roughly three times as long to complete cooking.

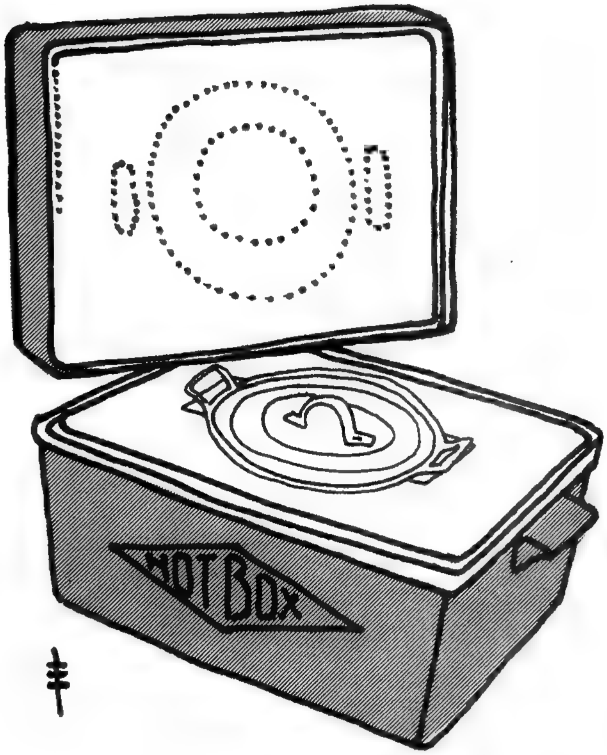
It's a good idea to reheat or reboil dishes, especially those which include meat, for a couple of minutes before serving them up, though this is really a matter of taste.

To use the haybox effectively, you need to experiment with cooking times and also to plan ahead. A lot will depend on the efficiency of your hotbox and its insulation.

Writing in *Haybox Cookery* (1939), Eleanour Sinclair Rhode suggested a rough guide of half the usual cooking time on the fuel, gas or electric stove, then 4-5 hours in the haybox. She calculated the *total* cooking time for chicken by allowing 15 minutes per lb, plus 15 minutes and for veal and lamb by allowing 20 minutes per lb, plus 20 minutes.

Another benefit of haybox cookery is that no heat escapes to the room outside the cooker in hot weather; another is that there are no cooking odours from onions, cabbages or beef — well not until you remove the lid to eat the meal, that is!

Porridge for early breakfast should be put into the hotbox overnight. Oatmeal, rice, cracked wheat and other grains swell to the utmost when cooked this way, but dried beans should first be soaked overnight before being cooked then put in the hotbox.



The British Hot Box

Put the evening meal in the hotbox during the day, go out, and enjoy it when you return, or cook the midday meal at the same time as breakfast and leave it in the hotbox until it is ready.

It's suggested that the saucepan should be so full that the lid will just fit on — this will prevent the escape of heat. You can also use the hotbox to heat food scraps for fowls and pigs and to warm up mash for laying fowls in winter. We'd like to know how you go with a haybox cooker and any useful methods of using it.

Here are a couple of E. S. Rhode's recipes from *Haybox Cookery* to try.

HOTBOX RECIPES

Turkish pilaff

To 3 tablespoons rice allow 3 tablespoons margarine, 2 tablespoons cooked fowl (cut up in small pieces), 4 tomatoes, a little stock and seasoning.

Boil rice in stock for a minute and transfer to haybox (hotbox) 7 to 8 hours. Melt the margarine in a shallow pan and cook the rice in it for 3 minutes. Add the tomatoes, previously skinned and mashed, the chicken and seasoning, and enough stock to moisten. Serve very hot with cayenne pepper.

Vegetable hot-pot

Take a mixture of carrots, parsnips, swedes, or turnips, white part of leeks, Jerusalem artichokes, and onions, all sliced fairly thickly.

Fry the vegetables very lightly and put them in the saucepan, with seasoning to taste, not omitting pepper. Mix a *roux* and add a tablespoon or so of milk. Put all in a saucepan and add sufficient water to cover the vegetables. Bring to boil and transfer to haybox for 3 to 4 hours.

Vegetable stock

In most houses there is considerable waste of parts of vegetables which, though not good enough to serve, are excellent for making vegetable soups.

Pea pods, the parts cut off French beans and scarlet runners, beet leaves (these are particularly wholesome), potato skins, carrot foliage, other leaves of lettuce, vegetable marrow seeds, onion and shallot peelings, leek tops, outer leaves of Brussels sprouts, turnip and swede parings should all be put in for vegetable stock.

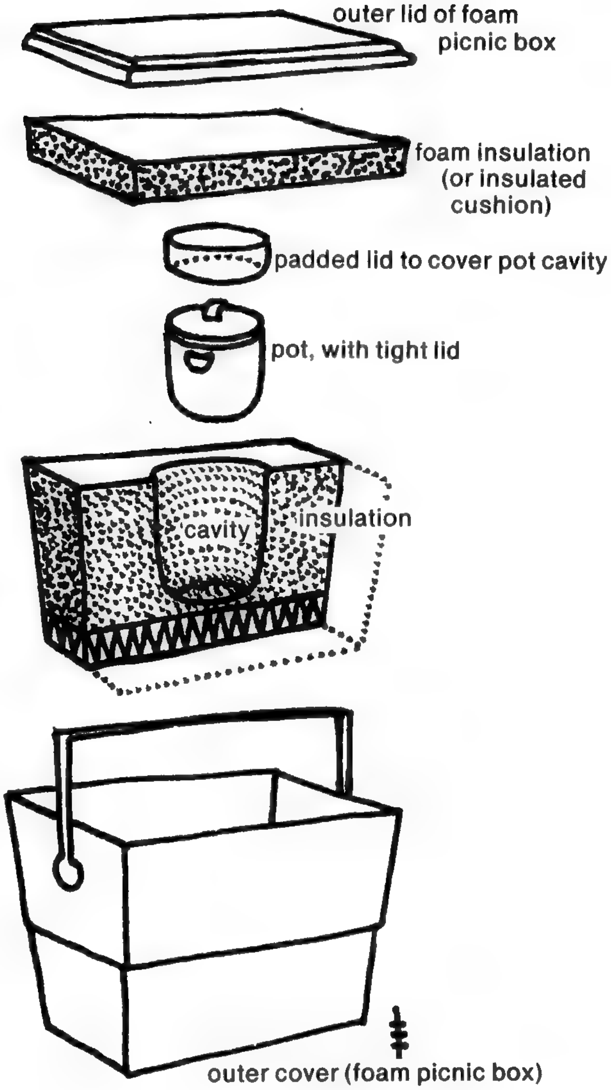
To make the stock cover these ingredients with water, boil for 20 minutes and transfer to haybox 4 to 5 hours.

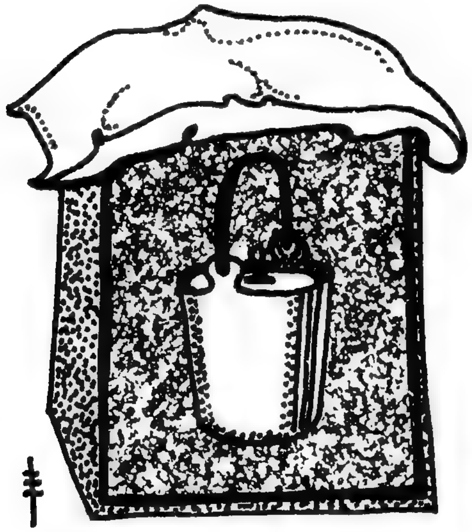
FIRELESS COOKER

A styrofoam picnic box or a moulded plastic *"Esky"* would make an ideal container for an efficient hotbox. It already has a degree of insulation "in-built", which can be further improved by adding insulation tightly packed around the cavity where the cooking pot will sit.

Use any of the insulation materials suggested for the **SIMPLE HOTBOX COOKER**, but remember that materials need to be replaced and repacked from time to time. The bottom layer could be tightly rolled newspapers.

Further loss of heat may be prevented by adding a heated rock (but not a river rock) in a layer of sand, which should be placed under the cooking pot cavity. The hotbox may itself be buried in a pit in the ground. It will also keep food *cool* for a short period.


outer lid of foam picnic box
foam insulation (or insulated cushion)
padded lid to cover pot cavity
pot, with tight lid
cavity
insulation
outer cover (foam picnic box)



SIMPLE HOTBOX

You can make a basic hotbox cooker in half an hour, improvising with material readily at hand. This will be insulated sufficiently to try out the idea of fireless cookery by making a few experiments.

The simple hotbox shown is made by burying a billy can (used as the food container) inside a wooden box in a nest of uncut hay. A pillow or cushion at the top makes an insulated cover.

There should be at least four inches of tightly-packed insulation material around the cooking pot (the billy in this case) and six inches of insulation above and below it.

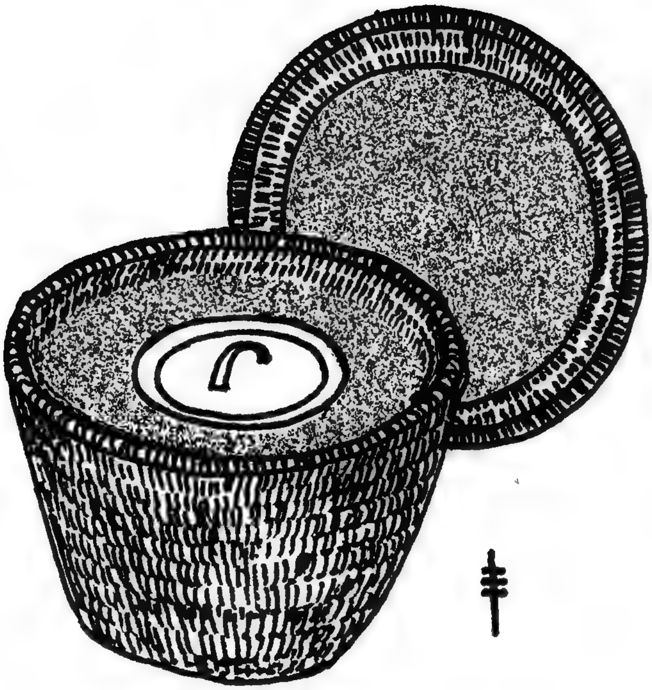
The outside need not be a box. It may be a foam plastic fruit container, a kerosene tin, a metal or plastic garbage tin or a bucket, but it should have a tight lid. The insulation may be shredded newspaper, polystyrene packing, cotton, sawdust, steel wool, dried seaweed or woollen blankets, as long as the material is dry and clean.

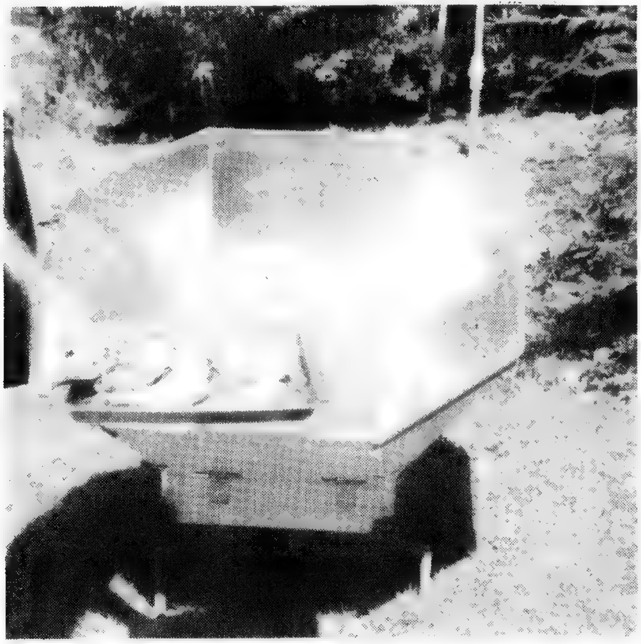
You can line a box or bucket with sheets of newspapers or even Post Office padded pags, cover it with calico or make a quilted cushion to fit over the pot. There is plenty of scope for your ingenuity and imagination here!

THE HOT BASKET

In the islands of the South Pacific, people have adopted the idea of the hotbox to make a *hot basket,* which saves fuel and uses easily obtainable insulation such as coconut fibres and banana leaves. A hot basket like this is used at The Community Education Training Centre run by the South Pacific Commission at Samabula, Fiji, to show the students how to use the fireless cooker in their home villages.

Small "hot baskets" of this kind are available from Asian shops with teapots. They look pretty and keep your tea warm as well.





The Solar Cookery Book

Everything Under the Sun

Beth and Dan Halacy, Peace Press, California, 1978, 122 pages, illustrated. Price $8.95. Distributed in Australia by Second Back Row Press, PO Box 43, Leura, NSW 2781. Add $1.00 if ordering by mail.

Contains detailed plans for building the solar oven and also a parabolic reflector "hot plate", with hints on solar cooking and lots of recipes. "Neither of us qualify as experts with tools," say the authors, "but our solar cookers work very well."

HALACY SOLAR OVEN

By John & Helen Alexander

It's very pleasing to browse through *Earth Garden* and do a little day-dreaming, but the time for dreaming has now passed and action is called for — I retire in two years' time!

Accordingly, we bought a copy of *The Solar Cookery Book,* by Beth and Dan Halacy, and made ourselves a solar oven.

Basically, it consists of a plywood box, 18 inches square x 14 inches deep, sliced off at approximately 45° on the open end. One inch of insulation was placed on the bottom and sides and a galvanised steel liner placed inside.

Timber spacing around the top secured it all together and provided a flat face on which the glass cover sits.

Four reflective panels, 18 inches square x 3/16th inch, made of masonite with glued-on aluminium foil, were set up at 120° to the glass face.

The metal liner was etched and then painted flat black, a small oven thermostat was attached internally and the lot was directed at the sun. *Hey presto!* A temperature of 165°C was recorded. This was in Brisbane towards the end of summer. Even as late as May/June, the temperature was still at 160°C.

We have cooked numerous dishes in the solar oven, including scones, cakes, biscuits, baked apples and custard, chicken and caseroles with great success. It's a real thrill to look through the glass into a casserole and watch it cooking gently and know that this is costing nothing!

If anyone is interested in making a really successful solar oven, we recommend the Halacy's book. Buy it and follow the instructions carefully. We are now working on a parabolic reflector to produce steam. What for? We hope to tell you all about it in a future issue of *Earth Garden.*

The camp oven

By Nancy Robinson Whittle

Australia's pioneers seldom had much in the way of kitchen equipment, but one thing any self-respecting bush outfit always did have was a camp oven.

During the last few years, I've discovered what a truly versatile utensil that camp oven was. And still is.

It all began when I visited a camping centre in Adelaide to interview the proprietors for my (then) radio session. Amongst all the tents and sleeping bags, collapsible sinks and inflatable this-and-thats, and a great array of sophisticated camping gear, I was delighted to find some old fashioned cast iron camp ovens.

There were two sizes, both standing on the conventional tripod of stumpy legs, but different, so my guide informed me, in so much as the legs were detachable to enable the oven to be used either on an open camp fire or on an ordinary domestic wood, gas or electric range — or even over the ubiquitous *primus* stove for those with neither gas nor electricity.

I must have shown more than average interest in the camp oven, because a week or so later, along came a parcel, a very *heavy* parcel — a 12 pint camp oven, with the compliments of the chaps at the camping centre.

"Good heavens woman," said my husband. "What the devil are you going to do with that? We never go camping nowadays."

"Just wait and see," said I, unscrewing the three stumpy legs and putting them away in the bits 'n pieces drawer, where they lie to this day. Actually I'd never seen a camp oven used in my life, nor did I have any instruction to go by, but the whole idea appealed to my adventurous spirit. If my grandmother, pioneering in the back blocks of Queensland as a bride straight from the gentility of a finishing school in France could caster a camp oven, so could I.

And what *do* you do with a camp oven in a modern kitchen?

Plenty!

Like baking cakes on one little gas ring turned low, instead of having a great oven devouring gas like a monster. And roasting meat and making scones and warming pies and freshening bread — and a dozen other uses.

In case you have a long-forgotten camp oven stowed away somewhere, such as in the fowlyard — where I've seen lots of them used as drinkers because of their great stability — or would like to invest in a new one, here are a few suggestions:

Cakes

Use any customary recipe, so long as the mixture will fit into a cake tin, which in turn will sit inside the oven. Line the tin with two layers of thick, greased paper (because there's a tendency for burning on the bottom) and with its heavy lid in place, pre-heat the oven over your gas flame or electric hotplate.

The cast iron doesn't buckle and retains its heat for a long, long time. Place your cake (in its well-lined tin) straight into the camp oven. No water or trivets or anything else required. Replace the lid and reduce the heat.

Out in the bush the camp oven is usually rested on its tripod over a bed of hot coals, while other coals are heaped into the recessed lid. Often a hole is dug for the fire and the camp oven is put into the hole when the coals and ashes are right. More coals are placed on top.

With cakes, as with other uses for the camp oven, you may need a little experience in adjusting the heat correctly. But you can lift the lid periodically to take a peep at how things are doing and, eventually, you'll be rewarded when you see your cake coming up like Everest itself. Once heated the camp oven needs so little fuel to maintain the heat, that you may even find you need to use an asbestos mat.

Scones

Grease the oven, pre-heat and then reduce the fuel supply after placing scones straight on to the greased base. More Everests. Loaves can be cooked in the same way.

Mornays, curries, casseroles, etc

These can either be made very successfully in your camp oven, or simply reheated in your camp oven. Once again, you only need to use a small flame or ring. With my 1½ gallon capacity oven, I can make a monster mornay for a party crowd. This could also be an idea for those involved with what I call *"Pioneer tourism"*. Let your paying guests help themselves straight from the camp oven and so recapture just another bit of that genuine old atmosphere.

Warming pies, pasties or pizzas

Great when you come home from a shopping trip to find a family, or a clutch of men, waiting for a meal in a hurry. Whizz the camp oven on to the stove to pre-heat while you're taking your pizza or pies from the refrigerator or the car, then place them on the base of the oven and reduce the heat. I've stacked three 10-inch pizzas one on top of the other, with enamel plates as dividers and successfully warmed them while I've unpacked the car and set the table for a mob of men at shearing time.

Not only does the camp oven save fuel at such times, but it also heats up more quickly than most ovens.

To freshen stale bread

Pre-heat oven. Dampen outside of the loaf under running water and place straight into the camp oven. Replace lid and reduce heat. The loaf freshens in its own steam, but may need turning after about 10 minutes. French sticks and rolls can be handled in the same way. The aroma that arises from the camp oven is almost as "earthy" as when you are making your own bread.

Puddings

Can be either baked or steamed in the camp oven. If steaming (for example the old bread-and-butter custard standby), put about an inch of water in the oven. Make your custard in an enamel bowl and sit it on a wire cake cooler at the bottom of the camp oven. Turn heat as low as possible.

Meat and poultry

Well, you've no doubt heard about the pioneer women and their pot-roasts cooked in the camp oven. A chook, or joint, placed in a greased brown paper bag, or in one of the new-fangled *Tiger* bags, and then roasted inside the camp oven, will give you a gourmet meal.

The sky's the limit. Just use your imagination and ingenuity like grandmother or her mother did. I can assure you that I'm no blue-ribbon cook. If I can master a camp oven, anyone can. Mine is 12 inches in diameter and 4½ inches deep, so quite a large roast will fit into it. As I write this, the aroma from a leg of lamb that is cooking in my camp oven wafts through the house . . . *almost* as mouth-watering as bacon sizzling on a real camp fire.

Barbecues

Because of its ability to retain heat and also its stability, a camp oven is a good adjunct to a modern barbecue area for keeping the chops 'n snags 'n hamburgers hot while others are being cooked — or while the inevitable stragglers turn up. The oven is also used for carrying hot food to community functions or to men out in the paddocks. If you live in the country, you'll know there are plenty of both — community bunfights and hungry workers.

Preserving

The manufacturer's blurb also mentions preserving among the possible uses for the camp oven. Perhaps it could be used for bottling. Maybe some older reader can recall seeing her mother preserving food with a camp oven? If so, I'd like to hear how it's done.

The initial expenditure on a camp oven is soon covered by the saving of fuel used in cooking. There's a chance, anyway, that those of you who live on the land will find an old camp oven knocking about the property somewhere. Don't worry if its exterior is blackened — that's all part of the fun of cooking like grandmama. You'll be amazed at how quickly the oven heats and how long the heat is retained, even after the range has been switched off.

And, of course, if you go camping, you just screw the stumpy legs back into the base and away you go to use the camp oven over the camp fire coals.

Observation

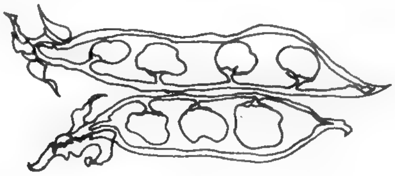
The Country Kitchen, a cast iron electric frypan put out by *Breville* is, in my opinion, a modern version of the camp oven. I now have one of these, in addition to the camp oven, and use it in much the same way. I seldom waste electricity using my conventional oven.

More books

What to Eat if You Don't Have Meat

Janice Graham, Stringybark Farm, 1980, paperback, 63 pages, illustrations by Berni Cashmore. Price $2.50 posted from Stringybark Farm, Tarrango Road, Gladysdale, Victoria 3797 (usual retail $2.95).

A neatly produced little book with dozens of ideas for meatless dishes. You don't need to be a vegetarian to find satisfying meals in this local collection of recipes. Janine is a "back-to-the-earther" who keeps dairy goats in the Yarra Valley in Victoria.



Soybean stuffed peppers

1 cup cooked soybeans
1 onion
1 cup cooked brown rice
3 green peppers, de-seeded (halved lengthwise)
1¼ cups water
scant cup cheddar cheese grated
salt
¼ cup Parmesan
¼ cup wheat germ

Chop soybeans and combine with onion and rice, add salt to taste. Fill peppers and put into casserole. Pour water around, not over peppers, cover and bake for 30 minutes at 350°F, Gas 4. Uncover and sprinkle over Parmesan cheese and wheat germ, continue baking a further 15 minutes.

The Dorothy Hall Herb Tea Book

Pythagorean Press, Sydney, 1980, paperback, 63 pages. Price $2.95.

Dorothy Hall, the well-known naturopath, herbalist and iridolgist, wants Australians to be more adventurous with their "cuppa" and gives us ways to brew up 49 different herb teas in this little book.

"Have fun with your taste buds," she says. "Try this, try that; open up a whole new approach to drinking pleasure and to maintaining health and well-being." The therapeutic and medicinal qualities of each herb are given in this tea "herbal", a bargain at the price.

Distributed in Australia by Publishers Distributors Pty Ltd, 104 Bowden Street, West Ryde, NSW 2114. Add $1.00 for postage. Catalogue of natural living and organic growing books is also available in return for sae.

Have you ever picked leaves from a gum tree on a picnic and dropped two in the billy of your ordinary tea to add to the flavour? Add the fresh or dried leaves of the eucalyptus, in all its many varieties, to any other beverage and you do two things — improve flavour and provide a valuable therapeutic agent. The aromatic, penetrating and antiseptic fragrance of the eucalyptus is known the world over for clearing the head and the respiratory passages of the upper sinus and the bronchial tree.

Land Lines is a free service for ***Earth Garden*** *readers, who must give their full name and address as proof of their sincerity. They also have the responsibility to thoroughly check all deals.*

Please keep listings to 50 words, plus name and address.

We are interested in buying land within a 60 mile radius from Lismore, NSW. We would like to hear from people who are considering likewise, or from an already established settlement that requires an extra share.

Please get in touch with Keiran and Robyne Godlee, 26 Valetta Street, Malvern, Victoria 3144. Phone (039) 509 4969.

For sale: 10 acre share in 11,000 acre community property, 45 miles west of Maryborough, Queensland. The share has a shed, a small caravan, two dams and about four acres fenced. There are 20 private shares and the rest of the property is left in its natural state for the enjoyment of all. Asking $8,000.

If interested, contact Lin Morrow, 10 Southall Street, Fairfield, Qld 4103.

land lines

Shares now available in Women's Land at $3,000 for one-tenth share in 355 acres near Wauchope, NSW; 70 acres cleared, rest forest, permanent creek, water, no buildings.

For further enquiries, write: "Bracken", PO Beechwood, NSW 2446.

We have at last found a site on the southern coast of NSW for our unique, Neo Christian style community. There are 100 acres or more available, with water frontage, adjacent to a beautiful lake. There are townships, beaches, boating, fishing, mountains and forest — it's all there! A permanent creek runs by the edge of the site, which is already fenced and cleared, apart from a few native trees. We hope that about 10 of us will be living and working on the site by August 1981.

A few shares are available at $5,000 each to successful applicants. Interested people are invited to inquire, please send a large SAE.

All enquiries to D. Toase, Back Rd, Kyogle, NSW 2474.

We have a restaurant for sale in Deloraine, Tasmania, named 'Beggar's Banquet'. We've been here for two years and have established a good name for fine whole-food-style cooking. We can take 32 people comfortably in a pleasant, rustic country atmosphere, with meals reasonably priced. The kitchen has recently been renovated and is well set up for a two person operation.

Terms of sale are $15,000 WIWO, with lease negotiable with the owner. Rent is very cheap, with premises on the main road from Launceston to Devonport.

Kim & Lyn Henry, 7 Blake Street, Deloraine, Tasmania 7304. Phone: (003) 62 2826.

Three more co-operative shareholders are sought. We have just bought 629 acres of magic mountain valley at Pappinbarra (Wauchope-Port Macquarie area), including over 250 acres of gallery rainforest nucleus which, like the native marsupial cats it apparently harbours, is on the brink of extinction. Our proposed permaculture system will co-exist harmoniously and symbolically with the rainforest. There is permanent water. We propose 10 shares of $10,000 each to enable us to cover the cost of the land and develop fences and an adequate wind generator system. We are looking for people (artists and musicians are sadly missing from our number) who are vegetarian, able to live ecologically with minimum destructive impact on this planet — gentle people, tolerant and able to love people.

Chris Rowland, 42 McCauley Street, Lithgow, NSW 2790.

Land wanted. Teacher wishes to rent, share or purchase land farmed by dedicated organic farmer who wants to, or has retired. My intention is to obtain reasonably priced land for low overhead, to continue teaching self-dependency 1-2 months a year in Third World countries.

Charles Marks, 27 Kangaroo Street, Manly, NSW 2095.

We are moving to Queensland in September and we will be looking for land or house and land on 10 acres or more, preferably more, not too far from the coast and within 15 minutes of a large town, electricity and phone available, up to $25,000. Anyone who has land they think might do, we'd love to hear from you.

Ray and Josy Young, Main Road, Victoria 3351.

Communal living/sharing: two women in the early-50s living in Sydney would like to meet other women/persons who want to exchange ideas on alternate ways of living and dealing with loneliness / aloneness, possible communal living or forming supportive / sharing group.

Some of the topics we would like to share are health, awareness of living, creativity, physical exercise, pragmatic necessities, interpersonal honesty and growth and community gardening.

With thanks, sincerely, Shirley & Jan, C/- Box 319 PO Spit Junction, NSW, 2088.

We (two people) would like to buy 10-25 acres on the north coast of NSW between Macksville and the border, five acres arable, or potentially arable. Creek, dam or the opportunity for a dam essential. No house or other improvements required (except dam or fences), but we would prefer electricity or access to it. We are prepared to pay up to $25,000 for the right situation.

If you can help please contact Phil Verner, 21 Pritchard Street, Annandale, NSW 2038. Phone (02) 82 2394.

For sale: 3¾ acres, fenced, dam, outbuildings, two bedroom fibro house, septic, 5000 gal house tank, all electric, very neat. Fruit, vegie, herb and ornamental gardens started. Situated half hour from Casino, Lismore and Ballina, 10 minutes to beach. Highway frontage with side road access. You could make an income as we do from passing trade, for example in eggs, dressed hens and ducks, goat products and home-made soaps. Price $45,000.

Contact Bruce & Margaret Pelvin, PO Box 58, Woodburn, NSW, 2472. Phone: (066) 82 2290.

Does anyone have some land for sale on the north coast of NSW, preferably Bellingen district, but 100 miles north or south would do? I can pay up to $13,000 cash and hope this might buy me a few acres. I would be interested in a "share" situation if I could still be free to come and go, that is not tied down to co-op duties. Permanent water and good soil are my main needs, with preference for a secluded area.

Robyn Howey, C/- 11/8 Webbs Avenue, Ashfield (Sydney), NSW, 2131.

For sale: 4.188 hectares, with a large dam, gently sloping and timbered land, steel shed 30 ft x 15 ft, with furniture, slow combustion stove and lounge suite. Two new water tanks (500 & 200 gals), new 240 v generator. Town power available. Steel shed, 10 ft x 10 ft and chemical toilet. School bus and mail service at end of 2 km dirt road, 8 miles from Nanango, south-east Queensland, 25 km from Tarong Power Station. Price $16,000, negotiable.

Chris & Marge Harrison, MS 1292, Nanango, Qld 4315.

Caretakers — people who care and tend farms, properties, houses or the like (Dictionary definition). Kay, the kids and I have in our lives looked after people's farms. We have found that people who would like to have a change or take a well-earned rest are reluctant to do so. There are numerous reasons why you become tied to the land and this is where we can help by caretaking your place and in doing so, you help us as well. We are caring for a piece of paradise north of Cairns, but it will soon be time to move on.

If you need a caretaker, please write to Kay & Ken Mays, CMB 9, Julatten, via Mt Molloy, North Queensland.

Tasmanian couple living in the Northern Territory would like to buy land of 30 acres or more, anywhere in Tasmania. Must have permanent water, with at least some flat ground. Liveable dwelling would be nice, but not essential, prefer bush or partly cleared. All correspondence will be answered.

Please write to Andrew & Jule Walker, PO Box 40008, Casuarina, NT 5792.

I am a young man who will be selling his land and house in December. I wish to buy 10-20 acres of "good earth" on the north coast of NSW, with a view towards self-sufficiency with a small income. I am a vegetarian. I would like to meet other Earth Gardeners on my journey up the coast in December and help in their "gardens" if needed. Please contact me if you care to help.

Martin Wilkinson, 27 Gilbert Street, Hackett, ACT, 2602. Phone (063) 49 1668.

We would like to hear from some happy, practical people who would like to join us in a venture of organic self-sufficiency in northern NSW. We are a couple in our 20s who have recently acquired 240 secluded acres near Nymboida, 40km south-west of Grafton. We would like to share the land with one or two other families or couples.

The land is hilly and timbered with a large dam and a small but permanent creek. We're asking $10,500 for a half-share, or $7000 for a third-share.

For further details, please write to Alex Bradley & Annie Wolf, Lot 1, Island Loop Road, Upper Orara, via Karangi, NSW, 2450.

Who would like to create a co-op? We would like to sell 628 acres near Grafton, NSW, with two portion numbers, for $28,260. There is permanent water, some improved pasture, nice rocky scenery, bushland with some good timber and in a frost-free area. The place is allowed to build 7 dwellings (with no other building restrictions!). We live on the other side of the creek and would like to create a self-sufficient musical community.

Please write to: Hans & Monika Mertiny, "Bauhinia", Copmanhurst, NSW, 2460.

We are looking for persons interested in buying a half-share in about 600 acres of secluded bush in north-east Gippsland, Victoria. The price is $40 per acre, therefore about $24,000, depending on acreage. SEC is available and there is a river fronting the road which borders the property.

Please write to Lynda Roberts, Box 112, Montrose, PO, Victoria, 3765.

Wanted: 10 or more acres in secluded area, water, trees, in a place where there are other people, small dwelling okay, some flat and hills, all weather access road, good rainfall, coastal northern NSW to Sunshine Coast, Queensland. anyone knowing of such a place, or willing to sub-divide, please write.

C. Bean, 2 De Serio Road, Cedar Pocket, Qld, 4570. Phone: (071) 86 6147.

We are escapees from the city, starting on the road to a healthier life and hopefully, one day, a degree of self-sufficiency. To make ends meet and to provide a service to like-minded people, we have decided to offer accommodation at reasonable rates to people who want to explore this area. We have an eight bedroom farmhouse with all amenities and guests will live as one of the family. We charge $7.00 for bed & breakfast and $14.00 a day for full board. We are vegetarians and have four children.

Ken & Jennifer Thurgate, Twin Palms, RMB 113, Blue Knob Road, Nimbin, NSW 2484. Phone: (066) 89 1278

Co-ordination Co-operative Ltd

Tuntable Falls,
Nimbin, NSW 2480

Co-ordination Co-operative was formed in 1973 after the **Aquarius Festival** in Nimbin in northern NSW and today has about 200 adults and 100 children living on its 1400 acre property.

The co-operative is seeking to obtain the current address of its non-resident shareholders scattered throughout Australia and is also refunding shares of those who wish to sell their share back to the co-operative.

Unfortunately, shares are no longer available for sale in this co-operative and we suggest that those who are interested in joining such a lifestyle should consider joining or forming other land sharing arrangements in the area.

If you would like a list (or want to join a list) of individuals or groups wanting more shareholders so as to form a land co-operative please write to: **Earth N People,** 1 Nullum Street, Murwillumbah, NSW 2484 (enclose 2 stamps) or phone (066) 72 2485.

Accommodation to visitors to the Nimbin area is available at the Youth Hostel and also at a Council Caravan Park. No accommodation for visitors is available at the co-operative except for a maximum one night stay in a Visitor's Field (a paddock without facilities). Work experience on communal farms in the area is sometimes available through the Nimbin Information Office.

Leaflets

To assist those wanting to develop a land co-operative, the following essays/information are available by writing to the Secretary of this co-operative and enclosing the indicated number of stamps:

Formation of a Land Co-operative (1 stamp)

Co-ordination Co-op Ltd (2 stamps)

Rules of the Co-ordination Co-op Ltd (4 stamps). This is its formal constitution and would only be of interest to those seriously involved with incorporation of a co-op or company.

We hope this information has been of some assistance to those planning on visiting or moving to this area, often referred to as the **Rainbow Region.**

Dave Lambert, Secretary, Co-ordination Co-op Ltd.

We are interested in meeting a family that would be willing to help us build up our farm of 50 acres in a self-sufficient style, with their labour in exchange for free accommodation and some land to use. We would also welcome another family of school teachers who would teach our children and others in an alternative system, who could also live on the land.

There is plenty of outside work in the near towns of Kyneton and Castlemaine. The land is centrally located between the two towns. We have four children, two girls aged 13 and 10 and two boys aged 3½ and 2 years. We do not drink or smoke, or dabble in drugs.

If this sounds interesting, please write or call to have a chat, Jack & Rhonda Tower, 3 Hewson Street, Melton, Victoria 3337. Phone: (03) 743 5880.

Self-Sufficiency Supplies, a going business, is for sale, complete with Solarhart solar hot water distributorship for Newcastle, NSW, plus alternative technology hardware and books in the store and by mail order. Leaving for health reasons. Annual turnover $1½ million. Asking price $50,000 + stock.

Contact Brian, Self-Sufficiency Supplies, 256 Darby Street, Newcastle, NSW, 2300. Phone: (049) 2 3999.

A well-established potter, lady and small child are looking for others who are in a communal situation, or are interested in forming a land co-op, preferably along the coastal hinterland of NSW. We are looking for people like ourselves who are non-smokers and vegetarians. People who have lots of energy and creativity to build a beneficial community are asked to contact us. Permaculture design, alternative energy resources and the urge to create beauty are some of our main objectives.

Please contact us if you are interested: Sergio Sill, 3 Mary Street, Hawthorn, Victoria, 3122.

We are a young, vegetarian couple in our early-20s, who would like to own acres anywhere from Port Macquarie to Cairns. We are experienced in most farm activities, caretaking, building, plumbing, clerical work, shop management and all-round work and love our alternative lifestyle.

We would like to know of anyone prepared to have our company and labour in exchange for a comfy shanty on a few acres, or someone who could help us on vendor finance to obtain our own slice of Eden. We are hard workers and prepared to help in any way. We have limited cash available and would appreciate any assistance Earth Garden readers could offer.

Peace & love, Grant & Lyn Edwards, 27 Avoca Drive, Kincumber, NSW, 2251.

A self-sufficient community is being formed on the Kibbutz principle of sharing without payment or shareholder basis. Situated 40km from Melbourne at the foot of Mt Dandenong, it is 5 acres, bordering the forest in a cluster zone. Wanted intelligent, mature people — no drink or drugs — with some knowledge of community life or farming. Training, advice and opportunity also given to work outside the community. Some accommodation.

George, Box 122, Montrose, Victoria, 3765.

Earth n People has currently around 120 share or co-op land seekers listed on its files. The list virtually grows by the day; therefore EnP's aim to link up land or land share seekers is a growing reality. We also have a listing of shares currently available in the northern NSW Rainbow Region.

This information is available Monday and Tuesday at CYSS centre, 1 Nullum Street, Murwillumbah, NSW, 2484, or phone (066) 72 2485. If you write, please enclose SAE. Love & light, Mick Cahill.

We are a family of four, Grant, 30, Gay, 28, Wayan, 5 and Leon 3. We plant to leave Sydney heading north at the end of the year, looking for land either to share or buy near other groups of our peers. We'll have about $16,000 to spend. We've had experience at farm living without electricity in a 70-inch rainfall area in New Zealand for two years. Also Grant should have completed his Horticultural Certificate. I have been raising a few milking goats. They will be kidding around October and I would like to take the best with us when we move.

If we don't find any land before the end of 1981, we plan to travel around with a tent, looking. Anyone who has some land to sell or available shares, we'd be grateful to hear from you.

Many thanks, Gay Summers, PO Box 10, Kingswood, NSW, 2750. Phone: (047) 31 7432.

We have 25 acres for sale, 12 miles from Kempsey, NSW (nine miles of this is good, all-weather gravel road). We have an embryo horse stud, with land about 40 per cent cleared and the balance mainly ironbarks, grey and spotted gums and some saplings. We have two dams, one fed by a permanent spring; the other, gravity fed, goes to the house and garden. We have built a 2-acre stallion paddock, with post and capping rail fence and a loading ramp, also milking bail, fowl yard and car ramp.

We have a slab style house, built with "flitches", which is 40ft x 10ft, with power, kitchen, bathroom, laundry. There are plenty of free flitches (sleeper offcuts) available locally for extensions (no building permission needed). We are asking $35,000 or make us an offer.

Wayne & Carol Rushby, PO Box 59, West Kempsey, NSW, 2440.

We are currently undergoing the formation of a co-operative society for our land at Pretty Gully in northern NSW near Uki. We are seeking more people to share our beautiful 210 acres of land with us to possibly develop as an extended family. Shares are $6750. If you would like more information, or to come and visit, please contact.

Graham Clements, 48 Sixth Avenue, Windsor, Qld, 4030. Phone: (07) 57 8625.

A beautiful property of 55 acres on the Macleay River, 17 miles west of Kempsey is for sale. There is a permanent creek, dam, stock yards, 10 acres of creek flats, undulating, flood free. The house is huge, with 4-5 bedrooms, lounge-dining with fuel stove, family room, septic toilet, electricity. There are large verandahs on three sides, hung with vines, also an unlined spare room. Suitable for a group of people, a large family, or as a hostel. Price $67,000 negotiable.

Phone (065) 61 7119, ask for Mike or Maureen Corden, or write "Narnia", Temagog, via Kempsey, NSW, 2440.

We are interested in land that may be available in the near future. Our two prime areas are Perth and Albury/Wodonga, though other areas would be considered and it need not necessarily be cleared land, but must be warm (written in Melbourne!). Regrettably, we would not be in a position to be disdainful of the work ethic and consideration would have to be for land near a centre suitable for me to continue my occupation as a chef at least for a time. All replies will be answered.

Terry & Harriet Jones, 312 Burwood Highway, Burwood, Victoria, 3125.

We, a young couple and 2½-year-old, live in a fairly isolated area of bush, 50km south-west of Ingham, North Queensland. Any Earth Gardeners in the Ingham-Townsville area who would like to spend a weekend in the cool, mountain air occasionally and get involved with stone building, grape vine pruning, chook rearing, gardening, horse-riding and child rearing, please write.

Shirley Prout, Box 433, Ingham, Queensland, 4850.

Land, 3450 acres, conditional lease, well wooded, 800 acres cleared on two permanent creeks (one spring fed), 10 miles to Tabulam, NSW. Nearest rail and airport is Casino. Price $20 an acre.

Contact Vernon Lewis, Box 35, Tabulam, NSW, 2470.

EARTH GARDEN INDEX

Issues 21-30

The index is not exhaustive. Bold numbers which follow each listing refer to magazine issue and light numbers to the page on which the article begins, or to the section covered.

Our double issues, Access 1 & 2 (E.G. 22-3 & E.G. 25), are included. You should be able to find most things.

The index for E.G. 1 to 9 was in E.G. 10 (page 56) and for E.G. 10 to 20 in E.G. 21 (page 29), while the first part of A Lytel Herball (E.G. 15) had its own index (page 69).

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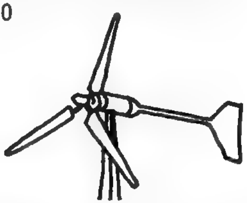

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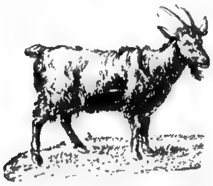

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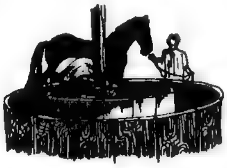

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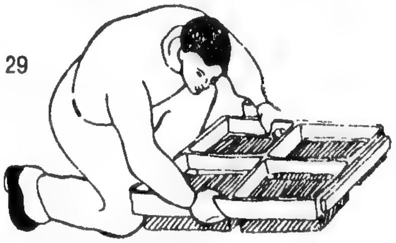

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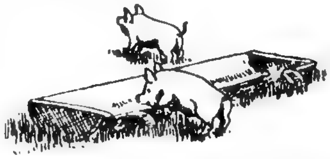

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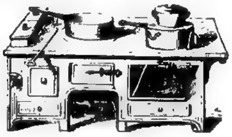

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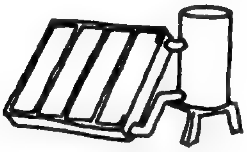

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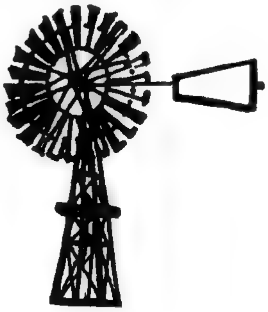

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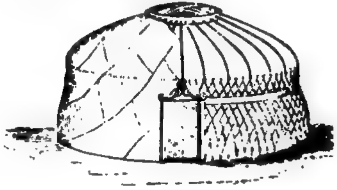

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WHAT'S AHEAD

Earth Garden 32 — Trees!

Trees will be the feature of EG32, out in November, which is appropriate as 1982 is to be the *Australian Year of the Tree.* We'll have articles on saving trees, planting them, tree crops, forestry and wood for building and fuel. We need stories from you, please. For example, we have information on coppicing, but would like to hear from someone who is actually *doing* it.

Earth Garden 33 — 10th anniversary issue!

Did *Earth Garden* change your life? It certainly changed ours! Please let us know how we helped (or hindered) you in our first decade. So far we haven't settled on a special subject to celebrate this landmark issue, so all ideas, hints and stories are welcome. Over to you.

earth people write

Dear Irene & Keith,

My 'crofting' venture goes on well. I now have 12 sheep, white and coloured, as well as my goats and my daughter's horses and recently acquired two little calves, Hereford heifer rescued from certain death in the heat as it had been abandoned by its mother and a little three-quarter Jersey heifer I got for company for the Hereford and as a possible future house cow! They are called Sunshine and Shadow. Thanks again for your marvellous **Earth Garden**.

Yours, Kirsty Blake, Denmark, Western Australia.

Dear Editor,

Friends of the Earth in the UK want to form links with environmentalists in Australia, at group or grass roots level, for exchange of ideas, of material, such as newsletters, stickers, publicity material, or just for a friendly exchange of letters between people concerned about the environment, all ages, both sexes.

FOE (UK) has grown rapidly from 15,000 members last year to 18,000 this, and is grappling with problems of nuclear power stations, land and sea pollution, destruction of the countryside, lead in petrol, etc, etc. If anyone would like environmental penfriend, please write.

Dudley W. Kerlogue, Friends of the Earth (East Wight), 'Fernacre', North Close Road, Bembridge, Isle of Wight , England, PO35 5XP.

Dear Irene & Keith,

I enjoyed the last issue **(E.G. 30)** very much and have read it from cover to cover. The compost article was great. I love my compost bin and all the ideas may help me improve it.

I was content to buy my magazines at the newsagents, but if subscriptions give you the cash flow to keep up the good work, I'm glad to assist.

Sincerely, Dorothy Harris, Bathurst, NSW.

Dear Earth Garden folk,

I host a programme on **Radio** Ettamogah, a community FM station from Albury, on organic living and would be pleased if anyone is interested in helping present topics. We would also like to get a permaculture group going in Albury and people could register their names with me if they are interested.

Thank you, Sue Templeton, Lavington, NSW.

Dear friends,

I have found **Earth Garden** very helpful for planning my retirement. At the end of this year I am 45 years of age. It took me 10 years to finally convince my wife of the better way of life.

We bought 40 acres at Hargraves, just off the Hill End Road towards Triamble, NSW. Over the last 15 months since purchasing the land a lot of hard work and effort has been put in by way of clearing, fencing and levelling the site for our future home. At the present we have an 18 x 12 ft Texas tent to sleep in and a small 10 x 8 ft shed I built for us to eat in . . . peace away from the flies at meals.

The only real problem I find is the travelling back and forth between Hargraves and Seven Hills (Sydney). Petrol pricing has caused me to limit my visitations to my property to every three weeks instead of every two weeks, which I was able to do in the past. The return trip usually costs me about $25.00.

I now have the plans almost ready for my house to present to Mudgee Council for approval. I am a toolmaker by trade, therefore I am having erected a steel frame house on a concrete slab. The walls and roof will of course be steel. The balance of the work I will complete myself.

I have been able to erect all my own fencing (thanks to **E.G.**) with considerable ease. Again I built in steel and high tension wires. Most of the locals thought I was a little loose in the head using 2 inch water pipe for the strainer assemblies, but they worked successfully, proving to be a secure and rigid fence.

My advice to young people is: Think of your retirement early in your life. Do not wait until you are 65 years of age, because you may not live just that long. Many younger people (in the 18-20 year old group) who visit my property, or take the time and effort to come up are richly rewarded. One young lad said to me that for $6,000-$7,000 he could buy 25 acres of land instead of a new car, then all he needed was a tent and some camping equipment to do his own thing on his own land.

This is very true, as you can still find land at these prices if one looks around a little. I can hardly wait until the end of this year to move permanently to my property, away from the polution of city life.

I often read my **Earth Garden** copies over and over again. They are my bible for the land.

Peace & love, Barrie Tomlinson, Seven Hills, NSW.

Dear Keith & Irene,

I found **Earth Garden 29** quite by mistake at the newsagents and was so excited by its contents. It was very newsy, but most important, it had both sides of the story. Most, I've found, tell you how easy it is.

I am thinking of building in mudbrick on a 1 hectare site in the Adelaide Hills, but want to get all the information I can before even asking the Council. As my job is shift work, I will be restricted as regards any help I may be able to get. At this stage it looks as though its thumbs down for a few reasons, including the fact that I was ¾ burnt out in the Ash Wednesday fires of February, 1980.

I guess it's the problems that you meet along the way that make life interesting (especially some of their solutions) but they do tend to come at the wrong time!

Best wishes, Jill Curnow, Parkside, South Australia.

Dear Irene, Keith & E.G. readers,

Thanks for **Earth Garden** and the joy it brings us. My husband and I bought our life's dream a year ago, our retirement farm, an old dairy farm of 40 acres with an old farmhouse, near Morriset, NSW. At present we enjoy it as a weekender, when we are busy preparing for our retirement by planting fruit trees and making a good permanent garden.

We would like to meet people who share our love for the soil to have some social contact, as it is hard to get to know people in the area while we are not living there permanently. **Earth Garden** readers who might like to contact us are welcome to write to us.

Best wishes, Ellen & Steve Draser, 52 Nowranie Street, Summer Hill (Sydney), NSW 2130.

Dear Earth Garden,

I wonder if anyone can give me some information regarding pigs and snakes? We live in an area where there a **lot** of snakes. I have even heard that some fully grown pigs will eat snakes!

Also, my daughter and I would like to hear from anyone who'd like a pen pal. Catherine is 9. She likes horses, reading, and swimming. She will answer all letters. I'm 31, mother of two. We live on three acres. I like organic gardening, horses, farm animals and reading. We'd like to write to someone living on the land. I enjoy writing letters and have three pen pals in the USA.

Best wishes, Muriel White, R.D. 104A, Wynyard, Tasmania 7325.

Growing greens in the Wet

By LEN MULLER

In the lowland Australian tropics, heavy rains fall in the hot part of the year — around October-November until March-April. The ground at times becomes saturated and in heavy soils with faulty drainage many plants — even fully-grown trees — may die.

This is partly because water replaces all the air in the soil and plant roots are unable to respire; and partly because harmful plants, animals and viruses reach their climax in activity at this time of year.

In hot, humid conditions, everything suddenly springs into fierce competition. Plants well adapted to these conditions grow vigorously and in profusion, and it is from these plants that we must choose our summer greens. Very few temperate climate plants are among them. We need plants that love water and heat and will not suffocate in the spells of continuous rain, which may last a week or longer if there's a cyclone about.

Fortunately, the native peoples of South America and Africa have been cultivating suitable green food plants for centuries — millenia, even — and new arrivals in the hot humid tropics should stop wasting their time trying to re-create English gardens and take a good look at these tropical plants as their sources of nutritious greens.

In some cases, propagation material is difficult to obtain in Australia, but many plants are available from nurseries and neighbours if you scout around. Kangkong, for example, grows wild in the Centenary Lakes in Cairns, and many a lagoon in the north. Look for the white "morning glory" that trails on the surface of the water.

The following ten vegetables are a few you will find easy to grow to keep you in excellent greens during the Wet.

AIBIKA *(Abelmoscus manihot/Hibiscus manihot)*

"Aibika" is Pidgin for *Hibiscus.* Aibika is a fast-growing shrub whose leaves and young stems are good greens. They are sold in markets in New Guinea as well as being grown in the home garden.

Aibika has a variety of leaf shapes, but they are generally palmate, about six inches across, often with some red colouration in the veins and the stems.

Superficially, the plant resembles another shrub vegetable called *Chaya,* from which it is easily distinguished by these red touches and its large yellow hibiscus flowers.

Aibika grows readily from seed or hardwood cuttings. It requires a sunny position, ample water and nutrients for vigorous growth. The people of New Guinea consider Aibika one of their best green vegetables, and it takes its place in their traditional cooking. In some areas, Aibika is attacked badly by grasshoppers, but it seems to outgrow them in the hot weather.

Potted Aibika plants are occasionally available in the Cairns area at Avondale Nursery and in Atherton at Kerry Davis's Atherton Native Plant Nursery.

Aibika — an attractive shrub — and the leaves are good to eat.

Amaranthus — the favourite green of the people of south-east Asia.

AMARANTHUS (*Amaranthus gangeticus* and others)

Many species of Amaranthus, Celosia, and their relatives are edible, and will grow almost as weeds practically all the year round.

Once you get them, save your own seeds. It's amazing how many varieties you can collect, most of them ornamental, even the plain greens. At times, pests can be a problem, particularly moths.

Culture as for any vigorous annual, and rich soil with plenty of humus is recommended. Young stems and leaves of these plants are a good source of calcium and iron. Vitamin A value is high, and so is ascorbic acid.

However, Amaranthus should be cooked if eaten in large quantities to dispel oxalic acid, which interferes with calcium uptake by the body. Naturally, this means that the Vitamin C content will be reduced.

Amaranthus is also commonly known as Chinese spinach, Indian spinach, *Bhaji* or *Bayam*, and *Tampala*.

In Asia it is an important vegetable and will no doubt become so here, since it is easy tg grow and harvest, and is one of the most paltable of all greens.

It is sold in bundles in vegetable shops in Darwin and Cairns under the name of "Spinach".

Chop leaves and tender stems and braise lightly in about a tablespoon each of oil and water with salt. For a richer taste, add a chicken cube or some *Belacan,* chilli sauce, and a teaspoon of soy sauce.

Seeds of Amaranthus are available from New Gippsland Seed Farm (PO Box 1, Silvan, Vic 3795. Send 30c for catalogue) under the name of Tampala, Fordhook green. Many varieties are available from seed merchants in Singapore and Thailand, and you will come across others in neglected backyards.

BASELLA or CEYLON SPINACH (*Basella alba* and *B. rubra*)

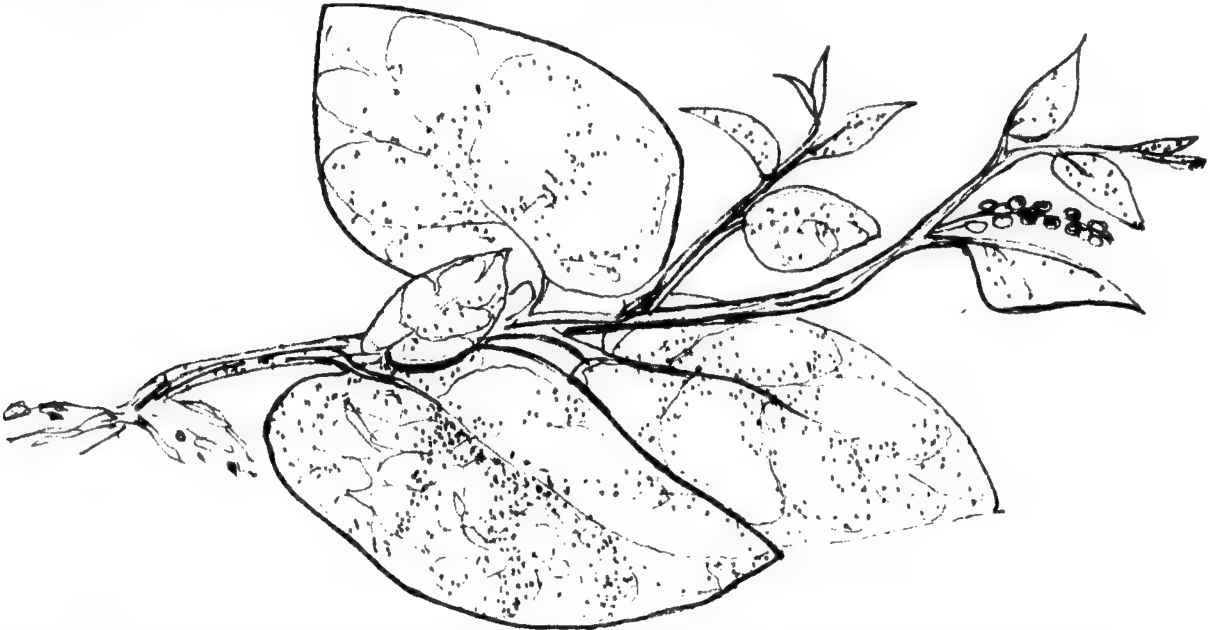
Two closely related plants, the green and the red. The green seems to be more vigorous.

Basella is one of the easiest-to-grow plants in the world. Pest free, it is the answer to those who find poisonous sprays detestable on their food. It will even grow in pots on balconies or in a sunny indoor position.

Basella grows readily from seeds or cuttings. It is a succulent, sprawling plant with heart-shaped leaves up to eight inches long. It will readily climb on a fence or among your shrubs, yet never becomes a nuisance.

It grows best on a heavily mulched ground, with some shelter from the afternoon sun. Braise lightly in a little oil and enough water to moisten. Basella is also quite palatable as a raw salad green.

Chaya — a young plant enjoys the mulch from the germinating coconuts.



Basella — the essential tropical green vegetable. Pest-free, it gives gardeners the courage to carry on.

CHAYA (*Cnidoscolus chayamansa*)

Hitherto unknown in this country, Chaya was recently imported by enthusiasts interested in the food plants of tropical America. Chaya is a large shrub which grows up to 10 feet (3 m) in a few months.

It produces large, richly dark green leaves of a distinctive shape, and is altogether a plant of striking appearance.

Chaya is a member of the Euphorbia family, closely related to *Jatropha* and *Poinsettia*. It has a milky sap which may irritate sensitive skins, and the whole of the plant is quite poisonous when raw. On top of that, some varieties of Chaya bear stinging spines, which are tiny and hair-like, and sting like a nettle.

What is quite wonderful about Chaya is that despite its poison and its spines, Chaya is one of the world's most delicious and wholesome greens when cooked! If your Chaya stings, wear gloves when harvesting it and cutting it up for cooking.

Chaya bears small white flowers, but very seldom sets seed. Thus, it is propagated by cuttings which root readily in almost any type of soil except waterlogged soil. Chaya makes attractive screening hedges, and produces vast amounts of green food which is replenished as you cut it. Pests are no problem, but scale insects and mealy bugs are occasional visitors.

To prepare Chaya for cooking, harvest the tender green shoots, including the stem, for a distance of about six inches (15 cm) from the growing tip. Store in a plastic bag in the fridge so that they don't go limp. To cook, cut into half-inch (1 cm) sections, place in a little water with salt, and steam or simmer for 20 minutes.

During the cooking, the stinging spines (if there are any) are rendered inactive and the hydrocyanic acid in the plant breaks down and fumes off in the form of hydrogen cyanide gas. *Do not breathe in the steam and ensure that the kitchen is ventilated.* After 20 minutes cooking, the Chaya is good food and can be eaten without risk. Chaya may be included in casseroles, soups and stews, since none of the poison remains in the cooking water Cooked Chaya with a good dressing, makes a beautiful salad.

According to Franklin Martin, noted authority on tropical agriculture and tropical nutrition, Chaya has superb nutritional value. In Yucatan, the plant has proved an extremely important green vegetable, and is indeed basic to the health of the people.

Like other members of the *Euphorbia* family, Chaya is important in folk medicine, but these uses are practically unknown to the western world. At least it is known that if it is cooked correctly, Chaya has no harmful effects and many beneficial ones. Easy to grow, pest free, nutritious, what more could one ask? Chaya is as yet a fairly rare plant in Australia, but it is being grown in north Queensland and in New South Wales.

CASSAVA (*Manihot esculenta/M. utilissima*)

Ancient in cultivation and one of the most widely grown of all plants, Cassava furnishes a starchy root vegetable as well as green leaves which are edible when cooked. Cassava is rather tasteless, and needs the addition of a rich flavouring agent to make it suitable for most people.

Cassava grows prolifically in the wet season, and will choke out almost any other plant growing nearby. Hence, it is useful not only for food, but as a means of weed control. Cassava needs plenty of room, and indeed is best suited to field cropping, but it will probably find a corner in the home garden.

Cassava leaves are good greens when cooked.

A good way to grow it is along the fence. Tie it to the fence to stop it sprawling on your other plants and collapsing when it is top-heavy with leaves.

Most Australians who have tried Cassava don't think much of it, but this is because they classify it as a root vegetable like potato. Let us accept that Cassava will not bear comparison with the English potato or the sweet potato. Compared with both, it lacks flavour. However, it has some advantages, one of which is that its starch hydrolises readily and it is therefore more easily digested. In Africa this quality is utilised in the making of *Fufu*, which is boiled cassava pounded with water to a translucent mass, which is often swallowed without chewing.

While some Australians have tried the root of Cassava, few have tried its leaves, a common article of fare in many countries. Like Chaya, Cassava is a *Euphorbia*, and contains hydrocyanic acid when uncooked. Cassava leaves must therefore be thoroughly cooked before eating.

Here are two Cassava recipes which ought to increase its popularity, one for leaves, the other for roots.

Cassava leaves in coconut cream

Cut up some young cassava leaves, place in saucepan, add about a cup of coconut cream, a dash of chili sauce, a chicken cube or a little stock, and some salt and pepper. Simmer for 15-20 minutes, taking care that the coconut cream does not all boil away. If it does, add a little more.

Leaves cooked for 20 minutes in salted water may be served with any dressing of your preference, hot or cold.

Cassava croquettes

Peel the bark (cortex) off freshly-dug Cassava roots, and remove any tough fibres that run down the centre. Cut into two inch (5 cm) sections and boil in salted water until soft (10-20 mins). Drain, remove any other tough fibres, and mash.

Add a tablespoon of butter or oil, some finely diced carrot, parsley, herbs, mint, celery, cold diced meat of any kind, and plenty of salt and pepper. Add an egg if liked, nutmeg, curry powder, whatever suits you and your food fetishes. Mix thoroughly, shape into croquettes, dip in breadcrumbs and fry both sides until golden (may be frozen before frying).

GANGES PRIMROSE (*Asystasia gangetica*)

Many people who have this plant in their gardens don't realise that they have an ample supply of nutritious, tasty greens without even trying!

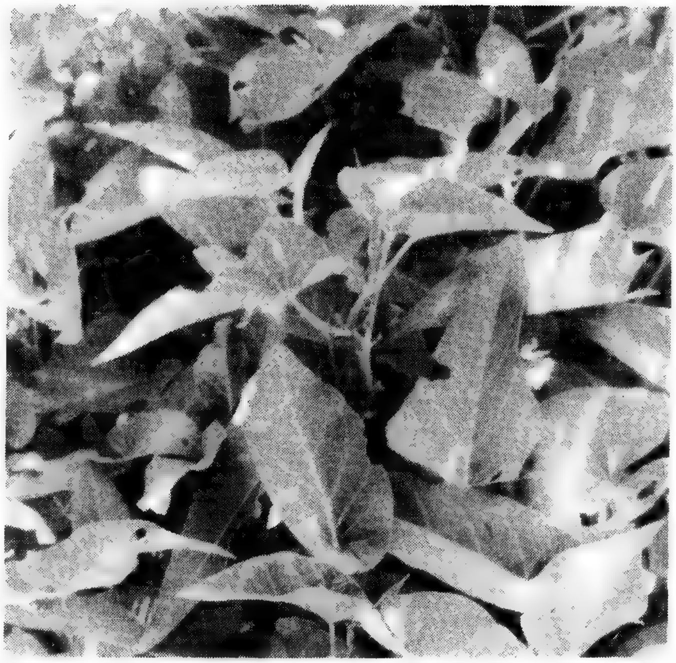
Ganges primrose is a rampantly growing plant that covers hard-to-grow banks and prevents erosion on steep slopes. Stems are wiry and tough when old, but young stems and leaves are tender and edible raw or cooked.

Like all plants, it responds to some care, and if watered all the year round, you will never be without an ample supply of greens.

In the Wet it goes mad. A patch about 10 feet (3 m) square will produce enough for a family, but if you have steep slopes and banks to maintain, plant it on them to reduce time-wasting mowing and slashing.

Ganges primrose has a distinctive, pleasant taste, rather strong in fact, and may be used to impart flavour in a mixed green dish. When you cook it, light braising is all that is required. Dress it up with white sauce if you like, and add it to soups and casseroles.

A dish of freshly cooked Ganges primrose is an excellent accompaniment to curry, and it is also enjoyed with a dressing of peanut sauce. All-in-all, Ganges primrose has much to commend it. It is hardy, luciously green, bears yellow, white or purple flowers. It is tasty and non-poisonous raw or cooked, and is a handy landscaping subject for difficult terrain. It is apparently completely pest-free.



Kang kong — grows in water and on waterlogged ground. A superb green vegetable.

KANGKONG (*Ipomoea reptans/I. aquatica*)

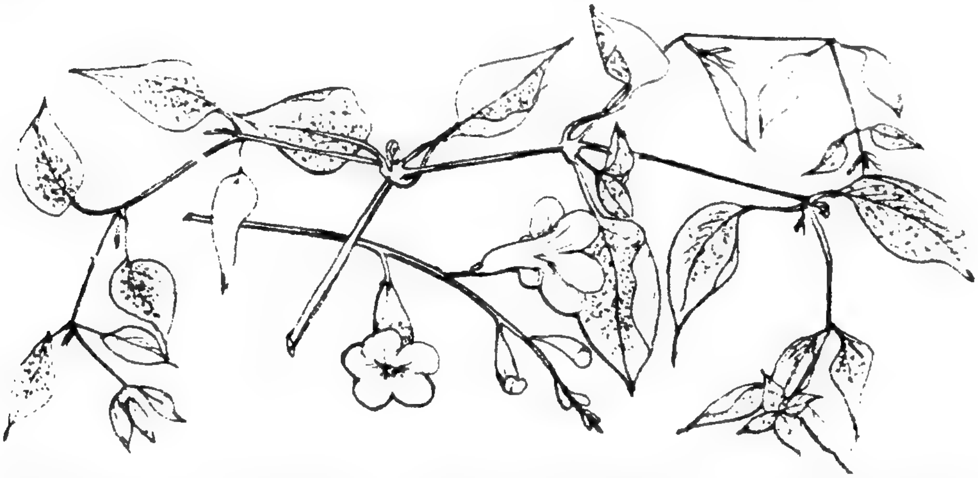
A plant of swamps and land that is inundated during the Wet. Kangkong is a convolvulus with white flowers and is an adaptable plant both in terms of climatic conditions and methods of culture.

It will grow on a pond, its hollow stems giving it buoyancy, or any waterlogged or well-watered soil.

The plant is either native to or naturalised in Australia, and may be seen inland as far as Mt Isa after heavy rain, when the seeds germinate and grow quickly. It is grown on a large scale in many tropical countries, particularly Indonesia and the Philippines.

It is sometimes sold in bundles in vegetable shops in Darwin. A few years ago, it was frequently available at the vegetable shop at the Parap shopping centre.

Kangkong may be grown from seed, but commercial growers in Asia more often use cuttings, which develop more quickly.



Ganges primrose — a neglected yet nutritious green vegetable for the tropical Wet season.

Like its relative the sweet potato, Kangkong has a milky sap, but is in no way poisonous. Its leaves are greener and more pointed than sweet potato, and it does not form tubers.

Harvesting is easier if the Kangkong is grown in double rows on slightly raised beds with good pathways between them. Grasshoppers like this plant and are a problem at times, but you will probably find it unnecessary to use sprays.

If you don't let the shot-holes in the leaves bother you, your harvested Kangkong is still edible and wholesome, raw or cooked. Braise lightly in very little oil and water just before eating, or add chopped to clear soup after you serve it in the bowls. If you order Steamboat in Singapore, Kangkong will probably be one of the greens in it.

PUMPKIN TIPS *(Curcubita* species).

Pumpkin vines grow very quickly in the wet season, and the tips can be harvested from rampantly growing vines without fear of affecting the yield of pumpkins.

In China they are called "Dragon's Whiskers", and are a luxury vegetable. Cut off four inches (10 cm) of the tip, and braise lightly in oil. If you find them a little stringy, chop them before cooking. Pumpkin tips are a useful supplementary green which adds variety to the diet.

SWEET POTATO VINES (*Ipomoea batatas*)

The tips and young leaves of sweet potato are eaten in all tropical areas, and during even the heaviest rain, appear to remain in good condition. Braised, they are tasty but definitely chewy, and possibly many people will prefer them chopped and cooked a little longer (say 15 minutes) in coconut cream or stock.

They are a useful inclusion in stews and casseroles, and they make a good curry. Stir in some yoghurt at the last minute. Chopped sweet potato tips may also be added to vegetarian rissoles.

A ready supply of greens such as these cannot be ignored, and will be far more beneficial than any vegetables you can buy in supermarkets in the Wet season.

So what if they are a bit chewy? The high fibre content is an added bonus to those who reckon their health important.

TARO LEAVES (*Colocasia esculenta/C. antiquorum*)

The young leaves of taro, thoroughly cooked, are good greens, and if they are harvested sensibly, will not affect your yield of roots. An important food of the Pacific peoples, even grown extensively in ancient Egypt and Mesopotamia, Taro is seldom used in Australia.

Many are familiar with the root vegetable, but don't eat it much as they find it too dry. Perhaps the following two recipes will change their minds.

Taro Puff

Peel taro roots,and boil in plenty of water until soft. Drain and mash. Add salt and pepper, a tablespoon of butter or oil, mix, and allow to cool. Add an egg yoke, and mix again. Whip the white of the egg in a small basin until stiff.

Place taro in a casserole lined with oil and breadcrumbs, fold in whipped egg white, and bake in oven for about half an hour.

Callalloo

Boil young taro leaves in barely enough water to cover. Add any kind of meat or ham (not fatty) and carbohydrate vegetables such as green banana or plantain, taro root, and flavour to your taste with herbs, chillies, salt and pepper. Some ground cloves or Jamaica allspice (only a little) are a worthwhile addition. Cook at a slow simmer for two or three hours, taking care that it does not burn.

Taro leaves are also excellent boiled, drained, and cooked in coconut cream. Young taro leaves may be wrapped around a small piece of roasting meat, which is then cooked in a covered casserole containing coconut cream.

Or chop some young Taro leaves, mix with some cooked meat — tinned corned meat is okay — and cooked rice, divide into portions, moisten with coconut cream, wrap each portion in a piece of banana leaf, and steam for about a half hour. If you like just cook the parcels in a casserole containing coconut cream. Fish may be used instead of meat.

A pumpkin vine covets the territory of a taro community. Soon, both plants will be fodder for the photographer.

You will note that most of the cooking methods used for these vegetables are different from those of our colonial heritage. I have deliberately used, wherever possible, recipes which place the plants in their own cultural context.

No doubt Mrs Beeton, if confronted with any of them, would have chosen to do something entirely different. Let me not discourage you from doing so. You must assimilate whatever is new into your own surroundings, and your own ecological niche. These plants are especially recommended for isolated communities, where roads go out in the Wet and transport costs on food are dear, but they are also for anybody who enjoys good greens all the year.

Further reading

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Mac Gregor, A., *Papua New Guinea Cookbook,* Jacaranda Press, Brisbane, 1977.

Tindall, H. D., *Commercial Vegetable Growing,* an Oxford Tropical Handbook, Oxford University Press, Melbourne, 1978.

Most highly recommended is the Martin and Ruberté book, which is available free on request from the Mayaguez Institute.

Working on another dream

Mount Glorious, Queensland
By Vic Calthorpe

I guess my dream started after reading an article in *Earth Garden 9* in June 1974 called *Working on a dream* by Marty & Dulcie Jarvis of Gilberton, North Queensland.

I remember sitting in my own one-man butcher shop on quiet days, reading *Earth Garden* and wishing I could do all these things I was reading about. Then I'd dash next door, buy a newspaper and scour the 'Land for Sale' column and ring all the real estate agents for further details, knowing full well that I couldn't afford anything in those days.

Fortunately for me — though I didn't think so at the time — there was a cheap meat 'boom' and I was forced to close down through lack of profits. I went 'casual' butchering and this gave me more money and more time to look around.

It was then that I decided on Mt Glorious, a patch of rainforest country 30 miles north of Brisbane, 2000 feet up with beautiful red soil.

Shortly afterwards the second stroke of luck fell — my house went under in the second worst flood in Brisbane's infamous history. The Council resumed the house under 'flood plain area' and I received cash in hand. At that time a house and land came up for sale on Mt Nebo, just seven miles from Mt Glorious. I grabbed it.

After some months establishing new sheds and gardens I found I was getting nowhere fast only being able to work my own place at weekends. As time went by I began to become miserable travelling to and fro to work and doing the mundane butchering job. It was fine earning $200 a week, but come Friday I paid $50.00 tax, $10.00 petrol, $10.00 lunches, $10.00 parking. Somehow paying $80.00 a week just to go to work seemed stupid!

I decided to take the most important step so far in my life and give up work and live on my skills and initiative. The first weeks were frightening — no paydays, no sick pay and no paid holidays, gulp! But I soon realised that I had no more Monday mornings to face, no more feeble excuses on why I was late and no more looking at those small white tiles in the shop with pictures of cow and chicken heads on them.

I still savour the moment when I handed in my notice and told everyone I was retiring at the age of 33.

I decided to advertise for jobs in the local Post Office. I had worked on the land for some years before, so I tried for gardening jobs. The offers came slowly at first, but, because I did my best and tried to be reliable, I had 17 regular jobs within the year. Finally, I landed the job of groundsman/cleaner at our local school and was able to give up some of the 'grotty' jobs.

I went on to working only in the morning and spent the afternoons with my old dog Tess, either tending the vegetable garden, maintaining my six beehives, talking to my five goats, or feeding the fowls, ducks and turkeys.

It was then that I made an important discovery about myself. The No 1 thing in my life is eating. I love it! I decided that if I could produce as much of my own food as possible at home, I would not have to work so hard for others. I've spent the past four years proving it can work.

One year ago I sold the Mt Nebo house and 'made it to the top' of Mount Glorious on ¼ acre of the best land I've seen, surrounded by rainforest and wildlife.

I've started again, of course, but with more experience, confidence and time. So if you are wondering if you can too — try. You have nothing to lose. *Nothing ventured, nothing gained.*

In a little Spanish town

Senija, Spain
By Bill Paine

I placed a land line in *Earth Garden 29* about my small terraced property in Spain. Since then I've had several interesting phone calls from all over Australia, so I thought I'd expand a little and tell you a bit about life in Spain on a one acre smallholding.

I decided several years ago that working till I was 65 to collect a pension wasn't exactly in my line and decided to look for a small, secluded place in Spain.

I have several advantages. One is that, presently, I work for an airline, so I can get there each year on holiday. Secondly, I have been to Spain many times since 1962 and knew where I wanted to look and thirdly, I was selling a half share in a small terrace in Glebe (Sydney), so I had the money.

In May, 1979, I set off for Alicante and, after driving, walking and catching buses all around that immediate area, ended up with a small stone house in a terraced valley outside the village of Senija.

It wasn't until June, 1980, when I went back, trowel-in-hand, to start renovations that I realised what a gem I had got. Built of dry stone and set on a gentle slope of terraces with olive and almond trees all over the place, it is one of the most idyllic places I've ever seen.

It's high enough up the hill not to be bothered, yet only 5 minutes walk into the village. You can see the market town of Benisa just 2 km away and the ocean through a cleft in the hills. If you need the hot spots, there are four holiday resorts for pubs and discos only 10 km away.

I was really fortunate that my good friend Gordon Grieg lived in Majorca and as he is a qualified builder and architect, I paid his fare over to help me for a month.

The old Spanish method of roofing is primitive, to say the least.

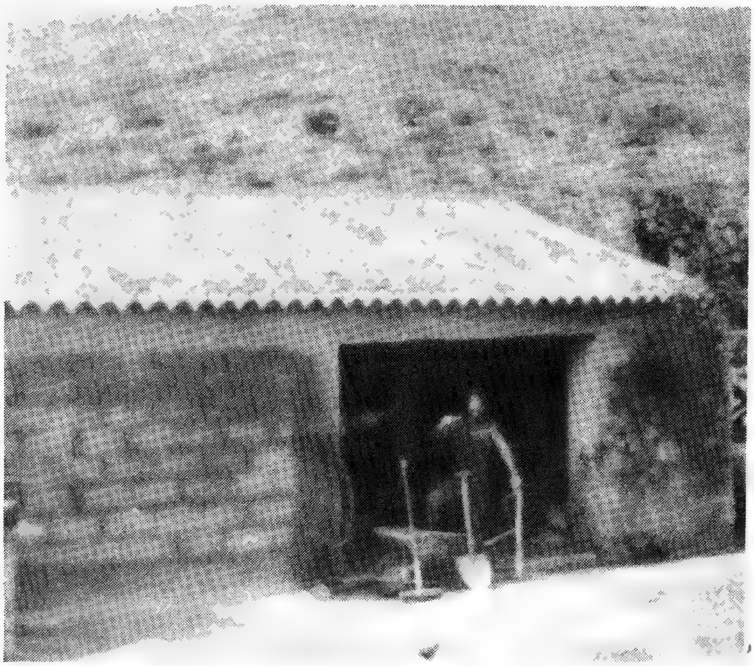
It consisted solely of beams approximately 1.5 metres apart, overlaid with sheets of bamboo, with clay tiles laid in overlapping rows straight on top. After 40 years, the roof was showing definite signs of age and I received several soakings when it rained in the first few days. However, the sun came out, we found a helpful Spaniard with a tractor and trailer for deliveries and away we went!

The first job was to completely strip the roof and salvage what tiles we could.

We then had to set new beams into cement along the walls at exactly 72 cm. This is to facilitate the next stage, which is placing long, rectangular hollow tiles across the beams covering the whole roof area. These tiles, 72 x 20 cm, are then held in place by a thin smear of cement over the whole surface area. This is very delicate for walking on, as Gordon found out when he crashed through onto the 'lounge' floor!

The next day the cement is treated with a waterproof, bitumen-style substance to give it a more water tight quality against the famous 'rain in Spain'.

The next stage is the fine fun game — aligning the tiles from two directions! I've never laid tiles before, but I certainly had to learn quickly. After a few false starts and tugging of plumb lines, I managed okay, as the picture shows. Gordon was busy setting the rim tiles in a bed of cement and squaring off the roof in general.



Our next job was to build a wall halfway along the open front, behind which will be the main double bedroom. For this we used ordinary concrete blocks plastered over the with cement render.

Time was starting to run out, so the only other job we tackled was the lounge floor and fireplace, in an attempt to get the house in a livable state. With 4 inches of cement on the floor, a dry-stone hearth across the end of the room and a new chimney a very comfortable effect was reached.

After a month of work, we had to call it a day and get back to our regular jobs. But, as you will see in the diagram, the house is taking shape and this year's tasks, in October, will be installation of three septic tanks and plumbing and, hopefully, the start of the kitchen and enclosed patio area.

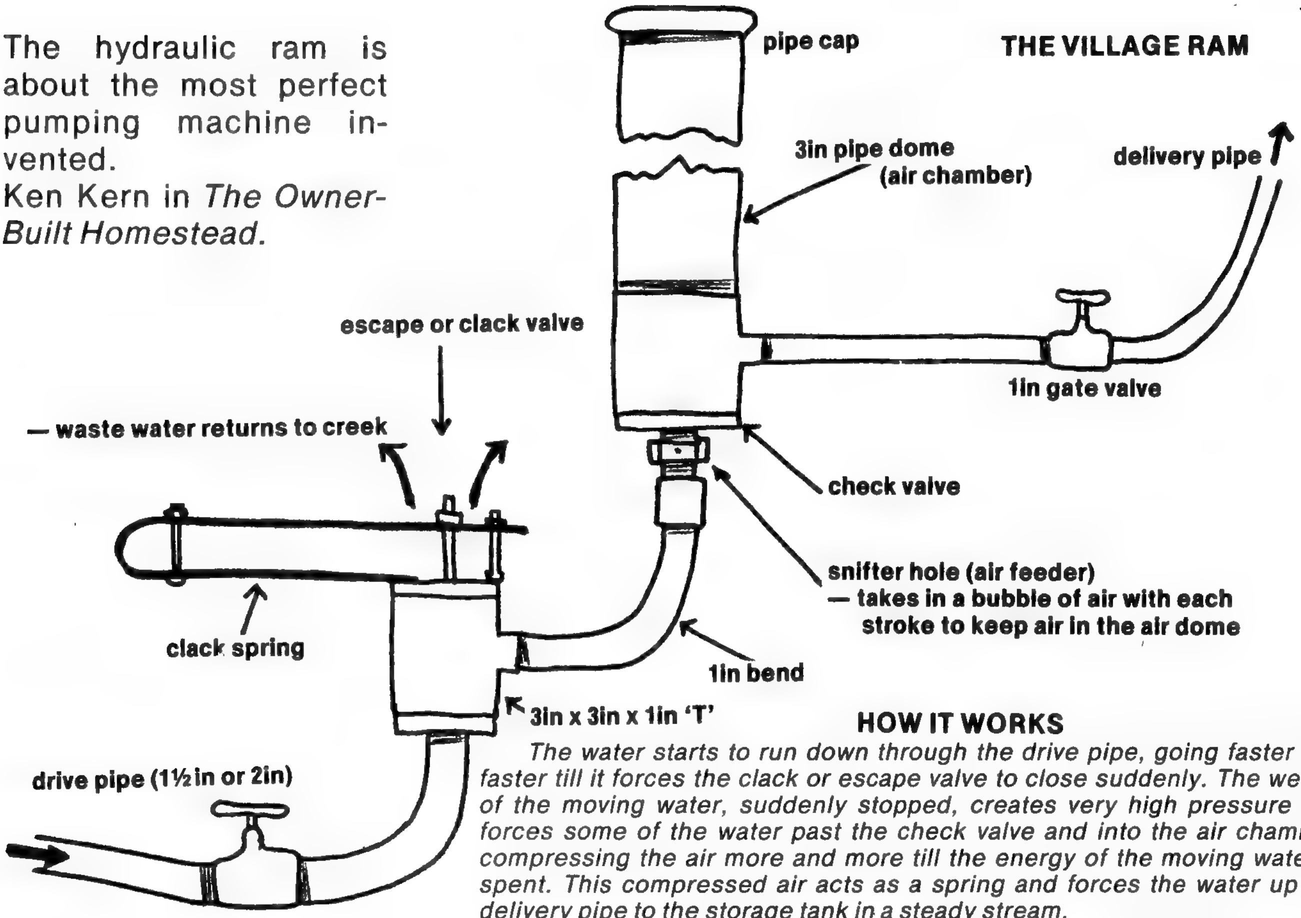
Future plans are a single bedroom in the enclosed garden at the rear, solar panels linked with the fireplace and a raised vegetable garden on the front terrace. Also, if my little Spanish gardener has done his job, I should have 20 more fruit trees planted by the time I get there, giving me about 50 in all — and still plenty of space left for the chooks to roam around.

Well, that's it for now. I hope I shall have more news about Christmas time, by which time the cottage should be livable and *Earth Gardeners* passing through Spain will have the opportunity to stay there for a nominal rent, plus a little housekeeping (but please contact me here first).

If anybody has any enquiries regarding where to go in Spain, don't hesitate to telephone, or write to me.

Regards Bill Paine, 125 Brighton Street, Petersham, NSW 2049. Phone: (02) 569 1998.

The hydraulic ram is about the most perfect pumping machine invented.
Ken Kern in *The Owner-Built Homestead.*


THE VILLAGE RAM
pipe cap
3in pipe dome (air chamber)
delivery pipe
1in gate valve
escape or clack valve
— waste water returns to creek
check valve
snifter hole (air feeder) — takes in a bubble of air with each stroke to keep air in the air dome
clack spring
1in bend
3in x 3in x 1in 'T'
drive pipe (1½in or 2in)

HOW IT WORKS

The water starts to run down through the drive pipe, going faster and faster till it forces the clack or escape valve to close suddenly. The weight of the moving water, suddenly stopped, creates very high pressure and forces some of the water past the check valve and into the air chamber, compressing the air more and more till the energy of the moving water is spent. This compressed air acts as a spring and forces the water up the delivery pipe to the storage tank in a steady stream.

— Ersal Kindel.

Make your own hydraulic ram

BY GARRY BRIGGS

We — Garry, Shirley-Anne and Holly — live on 5 acres of land on a small mountain creek in the ranges south-east of Ingham, North Queensland.

I have made two hydraulic rams from pipe fittings and I am working on a new design for a third one.

The first ram, built from the plans of the **Village Ram,** designed for VITA by Ersal Kindel, and based on 3-inch pipe fittings, is now in its third year of operation. The second one, with 4-inch pipes has been working since the last wet season (January, 1981).

The first ram

I started making this hydraulic ram in Sydney in July, 1978, while waiting for Holly to be born. It was made exactly to the plans, except for a modification to the centering device of the check valve. The cost of pipe fittings used was $50. The spring and valve parts were scrounged. A friend had the two parts that need to be machined on a lathe done for me at Tech.

Holly was born and we went home to Ilford, NSW, for the rest of the winter. I made the ram valves in my father's workshop and then packed everything away for our move back to North Queensland in October.

Back in Ingham, I re-assembled the ram and got hold of various lengths of 1½-inch pipe for the drive pipe, some sockets to screw the pipe together and some second-hand gate valves.

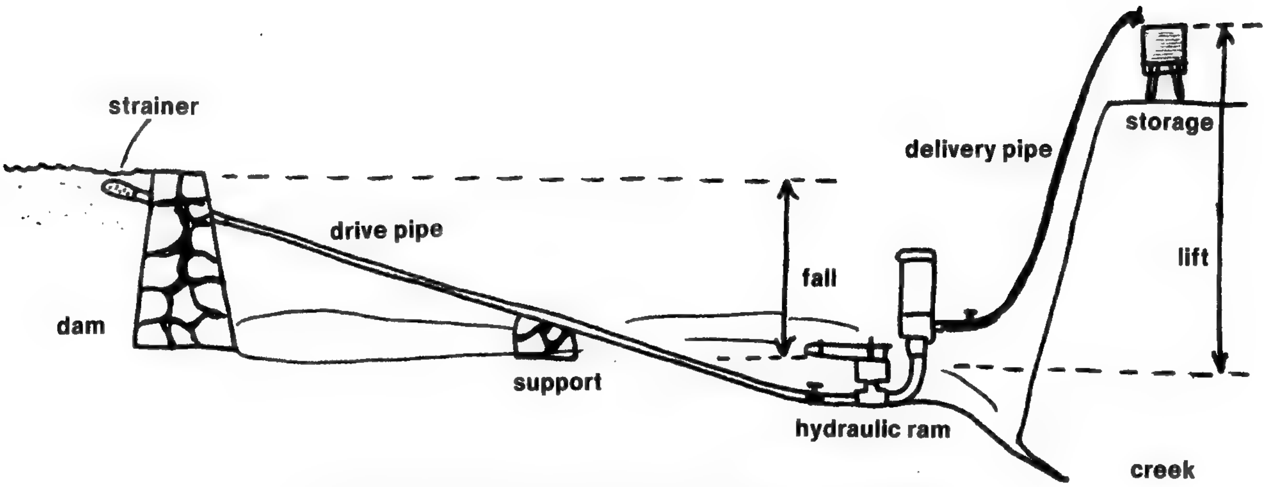
We moved to the mountains and started setting up the ram.

Setting up

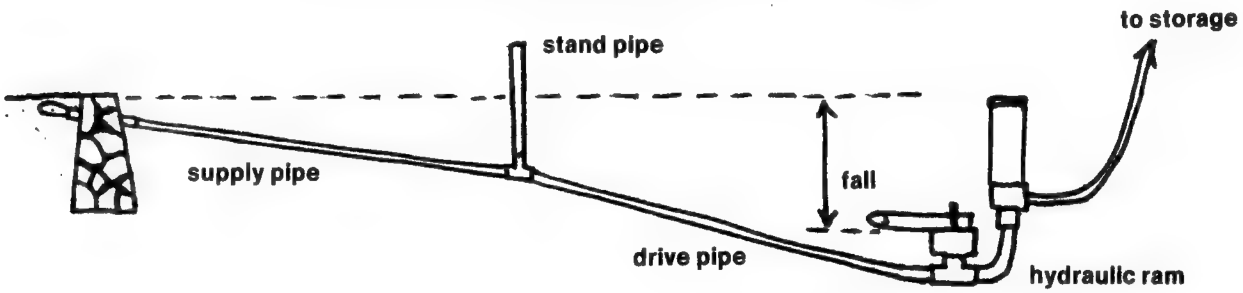
We concreted a piece of 2-inch pipe into a small stone dam already on the creek and built the dam up with more stone to give a fall to the ram of about 2 feet.

The pieces of 1½-inch pipe were screwed together making a length of 30ft of drive pipe. The ram was connected to the pipe and held in position with a couple of iron posts. A coil of 1-inch polythene pipe was unrolled — to become the delivery pipe — to an old galvanised iron tank on the hill above the house. The run was 110ft and the lift about 15ft.

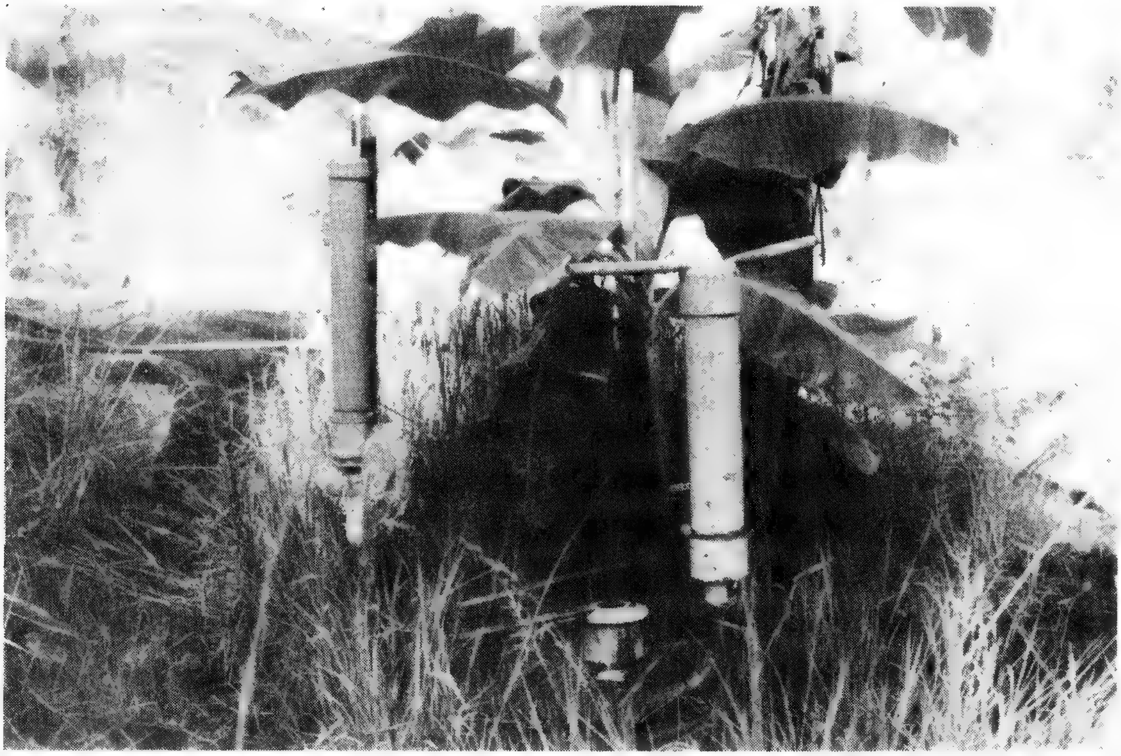
The water was turned on and, after a bit of fiddling with stroke and spring tension, it started pumping.



A. Common arrangement of drive pipe, ram and storage



B. Arrangement of drive pipe for a distant water supply



The small (first) home-built hydraulic ram at left, next to the second (bigger) ram.

Much excitement!

The galvanised tank was plastered and the rest of the poly pipe connected the water to the old house.

Wet and dry

Our creek normally stops flowing in November, but we had some spring rains that year and we were able to keep the ram pumping by turning it off sometimes and letting the dam fill up again.

The amount of water pumped was nothing fantastic on only 2ft of fall, but it kept us supplied with water at the house and we had enough to start a small garden.

The ram survived floods that year. It was stopped by trash on the spring, but started again when this was removed. It continued pumping until November, 1979, when the creek really stopped flowing.

We had bought a Honda pump for the garden and we were able to continue pumping with it.

The ram had to be dismantled once that year to remove a piece of grass from the check valve. The strainer was improved and we haven't had any problems since.

The second ram

In that dry season, I started making a ram that was intended to be the same as the **Popular Science Ram**, but the cost of a commercial check valve and the idea of having the ram buried in concrete put me off a bit. The cost of a 4-inch **Village Ram** was also too much.

I started trying to work out an idea for a 4-inch ram requiring no machinery, only drilling and welding, which I had access to in Ingham (there's no electricity here).

I went through my plumber's shelves looking for suitable pieces and the idea of how to make the check valve came to me. From there it was easy. The clack valve spring is similar to the 3-inch ram, although the valve is different. The cost was nearly $100, not including the 4-inch pipe dome, which was recycled.

Bigger dam

Between June and December, 1979, we built the first part of a stone house. Somewhere in there I found time to build up the dam another foot and put another pipe in the wall.

The big ram was connected to the dam with 80 metres of 2-inch polythene pipe and had a 30ft fall. When the rain came it worked, **but** both valves leaked and the overlong drive pipe had the effect of slowing the stroke too much.

We planned to try out a stand pipe (see diagram) but the non-existent wet season meant that we didn't have the water (or the money) to continue experimenting.

Dry year (1980)

The small ram kept pumping until September, 1980, when the creek stopped. By the end of November our pumping hole was dry — **it was** a dry year.

Anyway, when not working for a local tin miner that dry season, I built up the dam again and put in yet another 1-inch pipe. The dam is now over 5ft high and wet season floods have shown that to be the limit.

We bought some 2-inch galvanised pipe to replace the old drive pipe, which had rusted out, and connected both rams to it. They only work one at a time, but I wanted to continue testing the big ram without going to too much expense.

The valves were rebuilt on the big ram and it now works properly. We had a good wet and now (June) the creek looks great.

Semi-automatic watering system

My aim is to be able to water all gardens, trees and grape vines for most of the year, using only hydraulic rams or gravity feed, requiring a motor back-up only when the creek stops flowing. We don't have enough wind for a windmill. I have some plans for a solar powered pump, but the cost of making it seems a bit much at present.

At the moment we have:

1. **Big ram** watering fowls and gardens near the chook shed, when required, through a sprinkler hose (about 25ft lift).

2. **Small ram** (a) filling tank on top of new house (20ft lift);

or (b) filling old galvanised plastered tank (15ft lift);

or (c) watering gardens above the house through a sprinkler hose;

or (d) watering fruit trees directly through garden hose **and** gravity-fed hose coming from dam to gardens below the house.

All that may sound a bit crazy, but it is only a matter of turning a few gate valves and moving some hoses — **and it requires no petrol!**

The amount of water pumped to the top of the house, about 20ft of lift from the creek is:

1. **Small ram** 0.83 gallons/minute, or 1200 gallons/day.

2. **Big ram** 1.3 gals/min, or 1920 gals/day.

That's on 5ft of fall through 30ft of 2-inch drive pipe and the distance from ram to the house is about 60 metres.

Both rates of delivery can be improved. The small ram has a reduction from 2-inch to 1½-inch in the drive pipe before the ram, rather than the 2-inch pipe going directly into the clack valve chamber. Its delivery pipe has a 1-inch "T" in the line about 6 inches from the ram, causing more friction than would normally be the case.

The big ram is operating with a 2-inch long bend in its drive pipe just before the ram. This was to enable

Stone and concrete water tank, built on a rock foundation.

me to connect both hydraulic rams to the one drive pipe and also causes a loss in efficiency.

Plans, rams and dams

We plan to have three hydraulic rams on three separate dams on the creek. They will all have a fall of about 5ft. The fall of the top two dams can be combined with a long drive pipe with a stand pipe to give a total fall of about 12ft to one of the rams.

I haven't mentioned this yet and suppose I should, because it's the reason for all that building up of the dam already mentioned.

— The more fall to the ram, the greater the height (lift) pumped.

— Theoretically — 25ft of lift for every 1ft of fall (starting at 18 inches of fall).

Or, if the lift remains the same, the more water pumped (and, incidentally, the more water used). **NB:** Only about 1/10th of the water going through the drive pipe is actually pumped up to the delivery pipe, the rest is lost through the escape valve and returns to the stream.

Hence the idea of having more rams — using the "waste" water again.

So the 12ft fall gives that ram a capability of lifting water to 300ft. I only require it to lift about 50ft, so I should get a reasonable amount of water into the 10,000 gallon stone and concrete tank now being built up the hill, well above everything that requires water. This tank will be filled using the motor pump when needed.

The three hydraulic rams will be connected directly to permanent irrigation systems in various areas, which in turn can be connected to the high tank if necessary.

I have yet to work out the capabilities of the rams in this regard. On low lift heights they work a sprinkler hose very well, the big ram pumping into the old galvanised iron tank at a rate of 2 gal/minute, or 2,880 gal/day.

Ram number 3 is still in the bits and pieces stage. The second and third dams are started, but need lots of work, so it will still be a while before we have it all together. The third ram will feature a number of improvements on the previous two, making it better value for money.

Some information

If you have a flowing stream (potential power source) and like the idea of using a hydraulic ram, check out the possibilities of building a dam. Building dams on creeks takes money and large amounts of labour. You may also need permission from your local water authority before starting a dam.

A dam or your creek gives you somewhere to stick your drive pipe and also stores water for use if the creek stops flowing in the dry season.

You may not need a large dam to get a good fall. On a steep creek a site may occur naturally and only a minimum of setting up will be required. You can't hang any sort of pipe in mid-air indefinitely — it will probably need support — you may even be able to bury the pipe if you're lucky.

I have friends who have a **Billabong** hydraulic ram working on a polythene drive pipe simply placed in the creek upstream. It works, but is not as maintenance free as galvanised iron pipe in a permanent dam.

You may have heard that you must have a dead-straight drive pipe. You don't really. The ram is simply more efficient if the drive pipe is straight because it has more power available to it.

Creeks flood and big things float down them, so dams need spillways. Think about floods when you're deciding where to put the drive pipe and ram.

Information on falls, length of drive pipe, pumping heights and so on is available from the manufacturers of Billabong hydraulic rams. If you have the money, Billabong rams are solid, well-made, parts are reasonably priced and readily available. Old models are usually easily repaired.

If you don't have enough money, a small do-it-yourself hydraulic ram like these can be made for $100. There are a number of designs available. When you understand the basic ideas, designing your own hydraulic ram is possible.

Anyone who wants advice with making their own ram could write to me.

Garry Briggs, PO Box 433, Ingham, Queensland, 4850.

Farm dams

There is good information on building dams in *Cloudburst 1, Village Technology Handbook* and *Permaculture 2.*

SOURCES

Ram plans

A Hydraulic Ram for Village Use, Ersal Kindel, VITA, 1970, leaflet, 15 pages, with diagrams. Leaflet 18. Price $US2.95 from Volunteers in Technical Assistance (VITA), 3706 Rhode Island Avenue, Mt Ranier, Maryland 20822, USA.

Hydraulic Ram Forces Water to Pump Itself, A. W. Kaufman, Popular Science, October 1948, pages 231-233.

A Manual on the Automatic Hydraulic Ram Pump, Simon Watt, I.T.D.G., 1975, leaflet, 37 pages, diagrams. Price £stg1.50 from Intermediate Technology Development Group, 9 King Street, London WC2E 8HN, United Kingdom.

Pay by bank draft or international money order.

The **Village Ram** plans by Ersal Kindel are also reprinted in **Cloudburst 2** and **Producing Your Own Power.** Cloudburst 2 also has reprints of the **Popular Science** ram and **Building a Hydraulic Ram,** by Don Marier, which originally appeared in **Alternative Sources of Energy (US).**

Cloudburst 2, edited by Vic Marks, Cloudburst Press, 1976, large format paperback, 128 pages, diagrams. Price $7.50. Distributed in Australia by Second Back Row Press, PO Box 43, Leura, NSW, 2781. Add $1.00 postage if ordering by mail.

Producing Your Own Power, edited by Carol Stoner, Rodale Press Inc, Emmaus, 1974, 322 pages, diagrams, hardback (reviewed in **Access 1,** EG 22-3, page 137).

Both the **Village Technology Handbook** and Ken Kern's **Owner-Built Homestead** have some information on hydraulic rams.

Hardware

Billabong ram

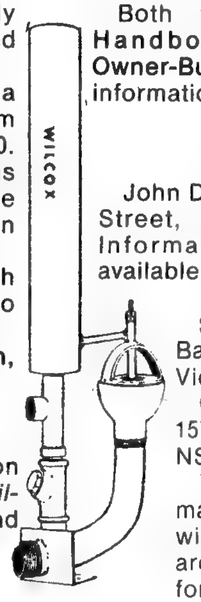
John Danks & Son Pty Ltd, Doody Street, Alexandria, NSW 2015. Information and spare parts available. Send sae.

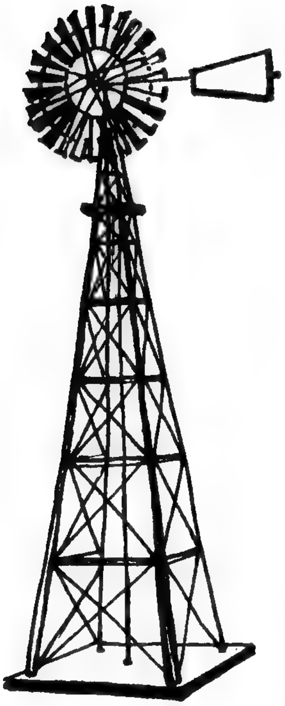
Wilcox hydraulic ram.

S. R. Wilcox Pty Ltd. 197 Bay Road, Sandringham, Victoria 3191.

Orange Farm Hardware, 157 Peisley Street, Orange, NSW 2800.

This basic hydraulic ram, made of galvanised iron with bronzed valves, sells at around $160-$170. Send SAE for information.





Choosing a second-hand windpump

By Chris Martin

Quite a lot has already been written in **Earth Garden** about the cheapest method of pumping water.

If you don't have mains electricity to the site, or enough fall in your creek, a petrol driven "fire pump" as suggested by Mario Zolin (see Water Systems, **Access 1,** EG 22-3, page 110) is the cheapest piece of equipment you can buy.

However, these units are designed for irregular use, such as bushfires and would only have about a five-year life if used constantly and are well-known for other nuisance problems such as losing their prime — not to mention the noise, waste of petrol and pollution.

Gone are the days when farm windmills were given away free or sold for their scrap value. New windmills sell for $1000 for a 6ft mill to $3000 for a 14ft model and this does not include erection, or the cost of the pump. Nevertheless, I still believe that a well-chosen second-hand windmill is the **cheapest long-term method** of pumping water.

It's also worth mentioning that with a windmill a larger storage tank is worthwhile because a windmill cannot pump water as fast as a fire pump and, of course, there are those days when the wind does not blow at all.

We have a 14ft Comet which cost us $500 delivered to the site and another $1000 for spare parts, erection and installation of the new pump, which we were able to do ourselves. Most people probably wouldn't need such a large mill, but ours is a fair way from our water source and has to pump up a high hill to the tank.

Here are a few tips that might be helpful to others:

1. How big a windmill do I need?

This depends, naturally enough, on how much water you want, how deep the well or bore and how high or far you wish to pump water. Most dealers and manufacturers have charts to help you with this.

Be honest enough to tell them that you probably won't be able to afford a new windmill. At the same time, remember that you will probably require spare parts one day.

2. What do I look for in a second-hand windmill?

(a) Find out where it is and how difficult it is to get to your place.

(b) How old it is — ours is 45-50 years old and parts are still kept for it.

(c) How long since it has been used?

(d) How deep is the well, or how high has the water been pumped? Farmers are notorious for buying **under** the recommended size. See if you can get a set of pumping tables, which should give you a pretty good idea.

(e) Try to find a windmill that is still connected and pumping. I know this may sound silly, but many windmills which are being sold have not pumped water for some time and are, therefore, less likely to have been properly looked after. Any windmill will work in a light wind with no load on it. Similarly, any windmill will pump water if the wind is blowing hard enough.

Unless you know exactly what you are doing, I would recommend that any unit above a 3-metre windwheel be put up by a professional. A tonne of head swinging 10 metres or more above the ground is an alarming and better forgotten experience.

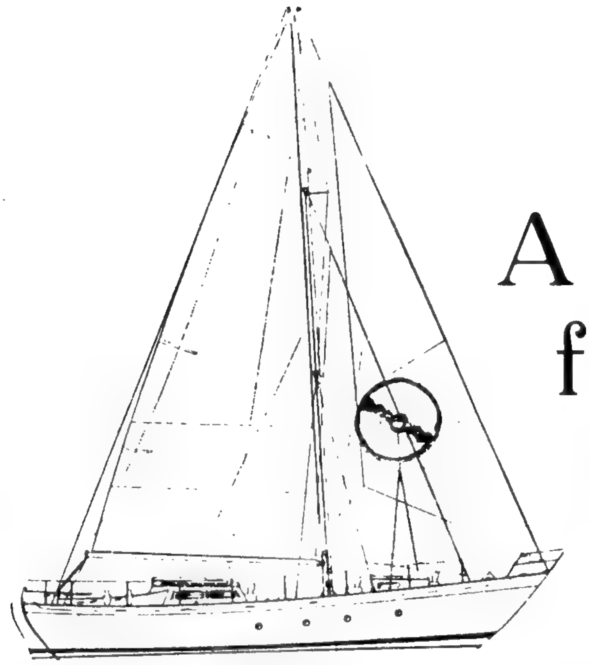
It's not like buying a car because reliable advice is not easy to come by, so it may be worthwhile paying a professional windmill mechanic to look at the second-hand windmill for you, especially if it is a big one.

Had **we** done this in the first instance, we could have save about $300, which we had to pay a **second** time to have the head removed so a new tower cap and turntable could be installed.

Trees and windmills don't mix very well. The tower has to be either high enough to get above the tree line or you may, unfortunately, have to cut some down, which is probably against the principles of most EG readers. Trees set up eddies and may affect the mill through an arc of 90° or more and thus reduce the amount of water pumped by 50 per cent or more.

Remember, never buy a windmill that is even a bit too small for the work or else you may find that it will only pump water in a gale.

May the wind blow always gently on your windmill sails, leaving the air unpolluted and peace in your valley.



A wind generator for land and sea

COLEPOWER WINDMILLS
Wind generators for land or sea
5 Brooklyn Road, Brooklyn, NSW, 2253
Phone: (02) 45 51204

We build electric generating windmills to order, for use on crusing yachts or for small homesteads and for electric fences.

We have one standard model, the CP150, which is a 150 watt, 12 volt unit, with a 6ft (1.8 metre) two blade propeller, which can be made for either upwind or downwind operation.

I can build almost any size of small to medium wind generator required, with a maximum blade size of about 12-14ft (3.6-4.2m), with outputs up to 1400 watts, or supply individual components to other windmill builders, for example propellers, step-up generators and airbrakes. I have a well-equipped machine shop and can handle most engineering jobs.

The CP150 has been designed and developed to charge cruising yacht batteries whilst at anchor or on a mooring. The efficient, high "tip-speed" two blade propeller will start charging at 10-12 knots of wind and will produce up to 12 amps in 25 knots of wind.

The power is generated by a well proven alternator, designed to give maximum output at 400rpm, which is bolted to a cast aluminium frame housed in a weatherproof fibreglass pod.

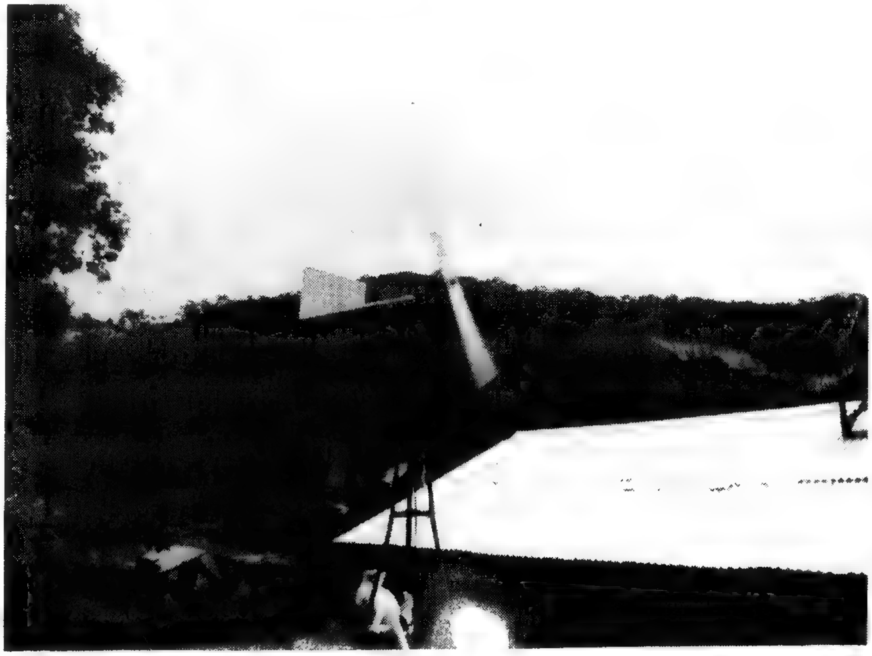
The 1.8m diameter prop is made from straight grain Oregon timber. shaped and balanced to give smooth operation in all rev ranges. Current is delivered to the batteries via a control box which has a voltmeter and ammeter with green and red lights to show whether the alternator is charging.

The CP150 has been designed with the marine environment in mind, with stainless steel nuts, bolts and washers and alloy castings. Prices are around $400-$450 for a complete, tower-mounted wind generator, not including the tower. Price on application for other parts.

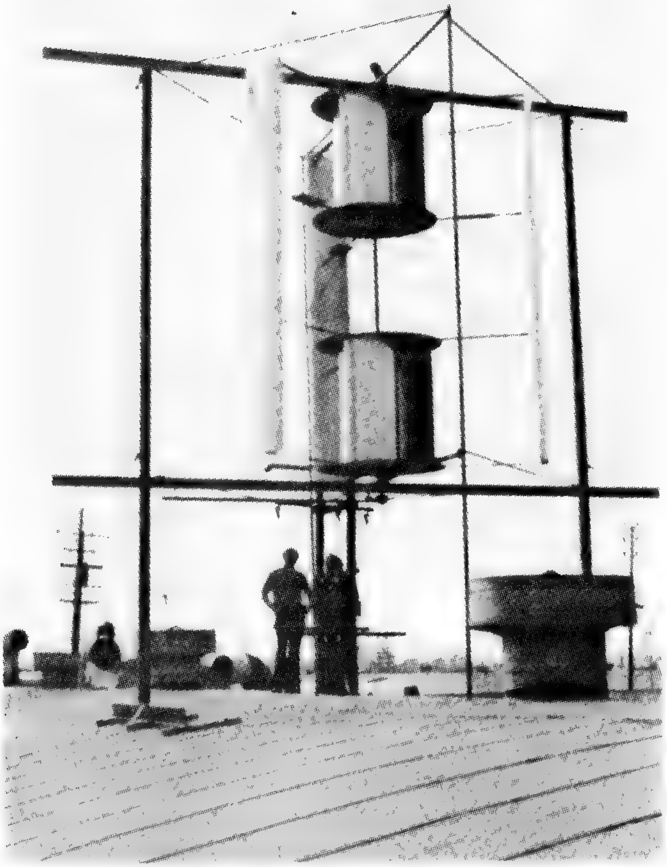
I've been developing the wind generator for nearly 1½ years now. In that time, my wife Chris and I sold our 35ft yacht, which we built and used to cruise the Pacific Islands. We've bought a small cottage on ½ an acre here at Brooklyn.

I'm always keen to meet practical windmill builders and exchange ideas and discuss designs.

Strong winds! Peter Cole.



ENERGY BOOKS



Hybrid Savonius rotor with hoop rotor.

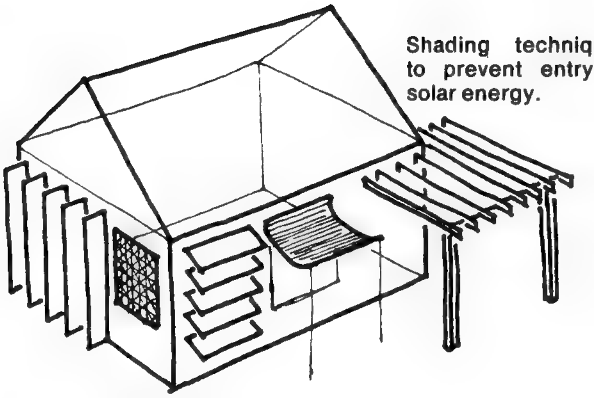
At home with alternative energy

A comprehensive guide to creating your own systems

Michael Hackleman, Peace Press, California, 1980, large format paperback, 145 pages, illustrated. Price $11.95.

Michael Hackleman, author of *Wind & Windspinners* (see EG25) and *Electric Vehicles,* says "the more you know the less you pay." I like this book because it is so good at getting that essential background information — and the *why* of it — across in a simple way.

Though it contains no step-by-step plans, it will be welcomed by tinkerers in energy uses, especially solar and wind power, but also (though to a lesser extent) in wood, water and methane. A very good introduction to alternative energy.



Shading techniques to prevent entry of solar energy.

Appropriate Technology Sourcebook * * *

Volume 11

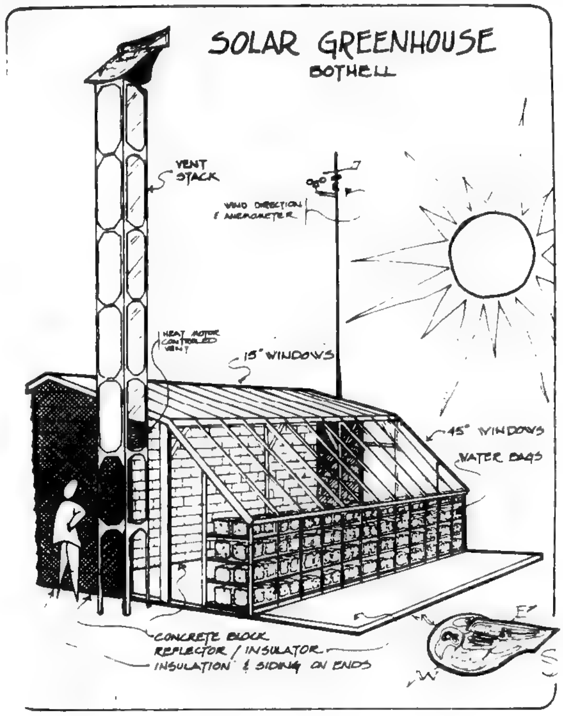
Ken Darrow, Kent Keller, Rick Pam, Volunteers in Asia, Stanford, California, 1981, 816 pages, paperback, illustrated. Price $8.95.

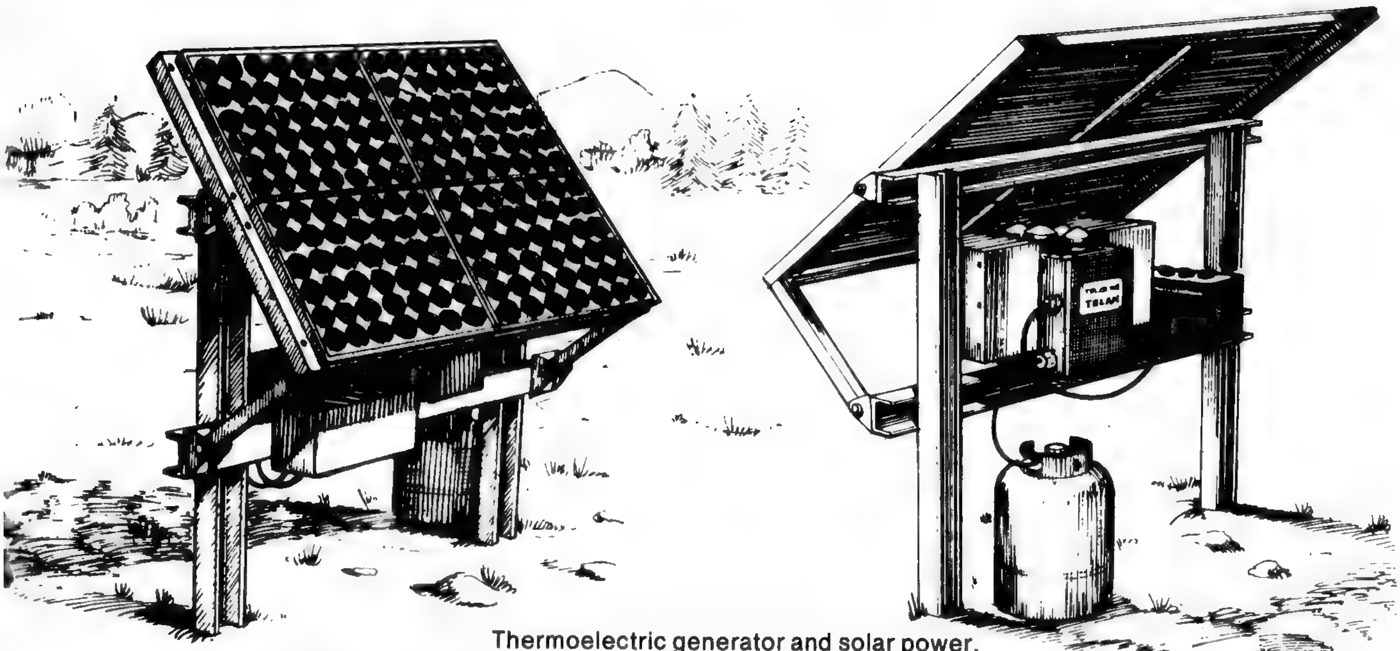
Like the first volume (reviewed in *Access 1,* EG22-3, page 135), this is "a guide to practical books and plans for village and small community technology". The material, though, is all new, expanding the sources of books and plans on energy, agriculture, aquaculture, forestry, building and transport aimed at Third World use — and therefore suited well to new settlers here in Australia.

There are brief evaluations and extracts from 500 publications throughout the world, some of them amazing in their simplicity, inventiveness and originality. An introduction to each section sums up the philosophy of the approach and philosophy of appropriate technology.

Appropriate Technology Sourcebook, Volume 1, with 30,000 copies in print, is now being used in more than 100 countries. It is available in a revised edition at $6.95 and not outdated in any way.

These two books and *At home with alternative energy,* are distributed in Australia by Second Back Row Press, PO Box 43, Leura, NSW 2781. Postage for each would be about $1.00.





Thermoelectric generator and solar power.

This hybrid system utilises solar by day, gas by night or when inclement weather prevails. Featuring automatic ignition, the US manufactured Teledyne unit can light itself up at sunset to generate thermoelectricity and close itself down at sunrise as solar electricity takes over.

A clever combination of two energy sources which can give efficient and reliable electrical power 24 hours a day. Both systems are well matched, neither contain any moving parts and are silent in operation. In colder climates the TEG could be installed near a dwelling where the warm clean air rising from the cooling fins could be ducted for room heating.

Methane CH_4

The Anaerobic Flame

Raymond F. Spargo, 1981, 112 page paperback, illustrated. Price $9.95 posted from Australian Methane Gas Research, Tomerong, NSW 2541.

Raymond Spargo, author of *Methane CH_4, The replaceable energy* (reviewed in EG26), in his new work continues to prove the value of biogas, or farm methane, as an energy source.

A quick look at the many photos will show you some of the uses of methane at work powering a cement mixer converted from power kerosene, a barbecue, gas cooking rings and lighting, a flame cutter and motor vehicles. Even more mind-boggling is his adaptation of methane gas heat and thermocouples to run electric fences, a gas radio, a gas television, a clock and an electric fence!

The background to making methane is clearly explained with instructions for building a SAM methane generator to experiment with biogas from farm wastes and a gravity bell to test the methane and carbon dioxide content of the gas.

Dr Alan Lane, of the CSIRO Division of Food Research (see *Methane Basics*, EG25, page 230-234), instrumental in the building of the methane plant at the Leetona cannery at Leeton, NSW, says in the foreword:

"This much needed book makes an important contribution because it helps to bring biogas technology within the reach of everybody with organic wastes available as feedstock ... Anaerobic digestion at last seems poised to make a real impact on waste management and energy self-sufficiency in Australia. Over the next few years, we can expect to see an increasing number of digesters coming into operation in farms, feedlot and food factories and the biogas being used as a substitute for fossil fuels in a wide variety of applications."

MUDBRICK CLASSES

The response to my article *(Bob's bonza brickmaker,* EG 29, page 35) has been tremendous. At least 30 people took up my offer of exchanging work for information and we are still receiving letters from others, from all over Australia. We enjoyed the company of many lovely people, some of whom might well end up as our friends and members of Moora Moora. I'd like to thank them all for their time — the bricks they made have been inscribed with their names and have mostly been laid.

It's obvious that there is a demand for my kind of knowledge, so I am setting up a part-time business, offering three services:

1. During spring and summer, I am running classes for small groups on earth house construction. The one day course will cover all aspects of earth house building and cost $25.00 per person.
2. I am available as a consultant to help sort out problems that arise. House plans, soil samples, cracked bricks, etc, can be brought to me, or I can go to the building site. Charge is $10.00 per hour, plus travelling costs (this is about half the usual professional rate).
3. Owner-builders in the Healesville area can arrange to have me work with them on a regular basis, such as one day per fortnight, at rates that can be negotiated.

Anyone interested should write to me: Dr Robert Rich, Moora Moora Co-operative, PO Box 214, Healesville, Victoria 3777.

Cliches become cliches simply because they are so apt they get repeated repeatedly.

Such a cliche (to life on the land) is — *'it's a great life if you don't weaken'.*

When you first move on to your very own piece of dirt, euphoria and energy levels run high. You rush around doing everything at once in a temporary fashion. Great fun, stimulating, challenging, exhausting. Your nightly plans for tomorrow and the future are orchestrated by the refrain — *'until we get settled.'*

No wise words of warning from us 'established' settlers will make any difference except that maybe you'll recall them after you haven't *'started off small and done everything properly'.* Then the knowledge that at least 80 per cent of other new settlers (including us) learnt the hard way too is at least consoling.

Three things can be said for temporary structures:

(1) They collapse through white ants and/or unskilled building methods at the most inconvenient times.

(2) Quite often it doesn't really matter — *'it was in the wrong place',* it's become totally inadequate for the purpose; you've changed direction and opted for pigs instead of goats . . .

(3) Although it looks crippled, it's strong, functions adequately and *doesn't* collapse. You get used to living with it and don't even notice your city friends looking askance at it.

As for the refrain — *'until we get settled'* — you can say either one thing, for example ha! ha! ha!, or you can say lots of things.

Like . . . If you dropped in on us you would find us still, after almost five years here, with unfinished, unbegun and sadly in need of attention jobs all around us, not to mention the *'desirable projects'* list fading away up on the blackboard behind the kitchen door.

It's not that we've become slack(?). It's just that we know that *'one of these days'* and *'all in good time'*, we really will get around to doing these things.

Lately, since we've evolved this more relaxed attitude, we seem to be getting a lot more pending jobs done and even putting some time into extra-curricular activities in the community. Maybe it's because we really are approaching the *'settled'* stage; maybe it's that we've dealt with the major necessities, maybe a lot of appearances don't matter anymore?

If you dropped in on Aunty G. & Unk (pseudonyms for relatives of mine) you would find two of the most hard working and delightfully warm and intelligent human beings you could wish to meet. They 'dropped out' from a life of comparative luxury just over 30 years ago. Since that time they have been living the self-sufficiency lifestyle.

If you visited them you could be forgiven for assuming that they had not long ago bought the old stone house and were in the middle of moving, repairs, sorting out and renovating. It's just that they have been so busy earning a living from their land, growing all their own food, mending and making do in every which way, caring for their kids, contributing to the community — that somehow, their basic shelter and surrounds never really finally got upgraded.

Like Cousin Claude, they are content with their life. Now if you dropped in on Cousin Claude (again a pseudonym), you would find him still living in the converted Army Nissen huts he grew up in when his parents originally 'dropped out' over forty years ago.

MUSINGS FROM MT NARDI

By Pauline Williams

It also contains, if you can thread your way through it all, the usual collection of bits and pieces of machinery parts found on all farms, Cousin Claude's current and discarded projects — model boats, sculptures, oil and bark paintings, finished and unfinished inventions, collections of rock samples . . . and pile upon pile of his own and other's writings on all sorts of alternative ideas and discoveries.

Somewhere around the property, you will also find his latest version of his 'improved' windmill. Still in his 30s, Cousin Claude lectures at a Uni and in his spare time, besides growing everything organically, is forever investigating, researching, building and trying out alternative ways of doing things.

I quote from his latest letter:—

". . . at least you appear to actually go into the vege garden now and then; we don't because there's a danger of getting lost in the sand dunes. They say it's the worst drought on record . . . three inch cracks in the bottom of the swamp, ie, the dam. Windmills refuse to pull up the bit of slop that is/was in the bottom of the hole I dug as the distance is too much for suction. We are just living for the day we have a safe water supply, so that one can be obsessed with some other topic for a change.

". . . Tide mill is about to enter phase two. Phase one ended in boringly predictable disaster. I've spent about one year casting concrete bits for a couple of rails to run out into the river, to carry the turbines and pumps. We are all ready to set this contraption up; in fact I've dumped the first four bits in over the bank (combined weight 4,000 tonnes) and will be trying to put them into place tomorrow at low tide, about 7 ft under the surface of the sewage that the river now is.

". . . Interested in your concrete tank. I was thinking about making a big one, but it would have to be enormous to get through a summer like this one. I've settled for trying to get our swamp deepened, by my patent dredge. Did I explain it? Hope to have water pumped by the mills to a high tank, whence it will run through a jet pump in the silt at the bottom of the dam, sucking out mud. Looks as if it could be okay, from trials through last year on 2,000 versions, but the record, and Murphy's Law, suggest it might be a fizzer.

". . . The roof job is going well, but very slow. With a bit of luck we will be sitting on our new northern verandah within one month. I have about four sheets of tin on the new roof, ie, the northern half of the house (southern half done last year). The northern half is going to do the air-conditioning/ventilating job, plus the solar hot water heating, plus the driving of a little hot air machine, plus providing heat to store for winter use . . . someday. The plan is to build an insulated water tank for the latter purpose . . . insulation will be a 2-3 ft blanket of soil."

He keeps a nice sense of balance and humour. His land, now close to the city, is valuable real estate. He won't sell. He loves the place.

Here's to all established and uping-and-coming alternative lifestylers!

Mudbrick sequels

Diverse Thoughts
By Jim Harris

Just back from visiting Dunedin, where I met the editors of *Mushroom* and made my first acquaintance with *Earth Garden,* purchasing E.G. 29 from Tapui Books. Bob Rich's labour-saving system alone is worth the price! But let me see if there is anything useful I can add.

Michael Bailes' failures with malthoid under an earth roof (*Herbs on the roof,* p 47) are surely due to his overlapping *sideways,* across the slope, instead of overlapping it *down* the slope, as with tiles.

A cheap alternative would be a double layer of second-hand corrugated iron, laid with larger overlaps than usual and, maybe, tarred before the earth goes on.

Laying straw before soil was a bright idea. For a steeper slope, one idea is to make a crib wall of scrap timber or straight branches, hoping that plant roots will be holding the soil firmly by the time the wood has rotted away.

Russell Wombey (*Energy efficient — by design,* p 49) like me, has made the mistake of setting electric heating elements in a concrete floor — a mistake because we are both stuck with it.

My son, in colder Dunedin, has done much better, having set water pipes in his concrete floor. Now that the original oil heater for the water is too expensive to run, he is debating whether to substitute a wood fuel furnace or an electrically-driven heat pump. With the heat pump, of course, it should be easy during a hot summer, to turn a few taps and have the device keep the floor cool: even better than the marble floors of Italy!

Russell has insulated his Canberra floor-slab edges. In New Zealand this has long been thought a waste of effort: the concrete itself is insulator enough, provided that cast-in heating elements do not go within a metre of outside walls.

Bob Rich's mudbricks with broken glass aggregate (*Bob's bonza brickmaker,* p 35) should make excellent mouse-proof courses for sod houses and his finding that, contrary to the Bible, bricks *can* be made without straw is most interesting. My guess is that our remote 'Caucasian' ancestors built from grass sod: for the *tumuli* of Denmark are now found to have been built from turf bricks as stepped pyramids. Those who went to northern Europe could still build in turf; but those who went conquering southward into what we now call the Bible lands, found no turf and so began making *ersatz* turf out of clay and straw.

After 5,000 years of this nonsense, it takes Bob Rich to discover that the use of straw is superstition, though I am told that tanning in the straw has some slight effect in modifying clay structure. If this is true, the winter tresses of weeping willow should serve much better than straw.

H. L. Mencken, an indoor man, considered that the only valuable invention in the past 100 years was the thermostat. My own three candidates have been the deep-litter hen house, Langstroth beehive and pneumatic-tyred wheelbarrow. Experience may prove that Bob's bonza brickmaker is a worthy fourth. The greatest advantage we have over people of only a few generations back is access to the food and fodder plants of the whole world, instead of merely those native to our region.

What do we value here, you may ask? Asian bamboos, *Actinidia* and citrus, New Zealand flax, Australian wattles and gums for cattle fodder, bee fodder and firewood; Amerindian corn, potatoes, tomatoes, peppers; Mediterranean artichokes, chestnuts, olives, pine-nuts; South American feijoas, tamarillos and pampas grass for winter fodder; lucerne tree and giant *Echium* from the Canary Islands and all sorts of stuff from the north, even unto *Angelica archangelica* from Finland. And we are working on two quite different gardening systems: double mulched raised beds v sub-irrigated containers.

To revert to the mudbrick world, rammed earth walls in France are always topped by fired roofing tiles and mud building in North Africa — judging from photographs — always whitewashed.

Your *mudbrick basics* (p 26) has nothing about stabilisers or other waterproofing, very much needed here if we build in mudbrick. We have plenty of rain and

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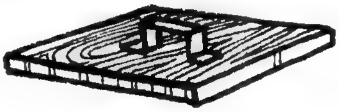
TWO BRICK MOULDS
By Neville Ackland

The wooden moulds mentioned in my story in *Earth Garden 29* (*A work system,* p 46) are made from seasoned pine. Obviously, the moulds can be made any size, but as we are building with railway sleepers, we made ours to suit the timbers.

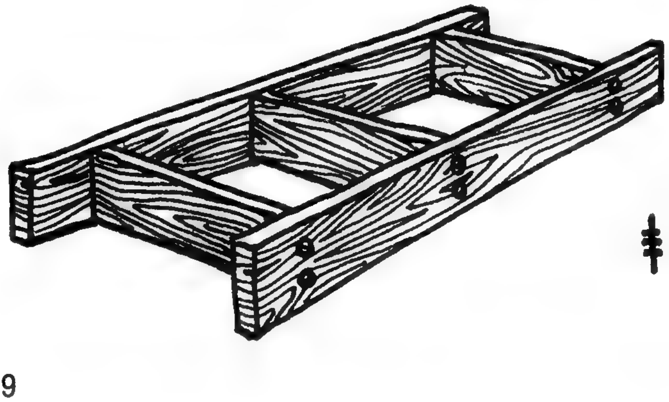
The lids made it possible to use mud normally too dry to come out. This is an advantage when working in winter. It isn't necessary to wash the moulds or lids at all, except at the end of the day.

The double mould is made from five pieces of timber, two sides and three divisions making the two compartments. The mould is operated by two people, each with a lid.

As the mould is lifted, the lid is held in place and the brick comes out. Very quick, simple and no water is needed. Outside corners of the moulds are braced for extra strength.



Lids are made from 5-ply to fit the moulds. A handle screwed to the lid makes it easy to hold.



wind enough at times to make it 'fall horizontally'.

Lacking willows, early Oz settlers used *Acacia* branches to hold up wattle-and-daub constructions and so called these trees wattles. If this is true, maybe the tannin in the bark was important in the setting of the clay and today's mudbrick experimenters could try puddling their clay in wattle tea?

Sincerely, Jim Harris, Main Road North, Waikanae R.D., New Zealand.

*We were pleased to hear Jim Harris' views on diverse subjects in our mudbrick building issue (*Earth Garden 29*). We sent Jim a copy of* Earth Garden 26 *with our colour photos of the Moroccan kasbahs to show that rammed earth buildings are rarely whitewashed in North Africa — in fact they are often covered by flat earth roofs. We admit it doesn't rain very often there!*

For wet places, we suggest that you allow roof overhangs, especially verandahs, and incorporate a good dry course rather than stabilise the soil. This is covered nicely in Bob Young's revised edition of Build Your House of Earth, *by G. F. Middleton (Second Back Row Press) which should be available in New Zealand (reviewed in* E.G. 26*). And, of course, many Australian owner-builders have made mudbricks without using straw or other binders, especially with earth which has a low clay content. Thanks for the feedback, Jim.*

—Keith & Irene

Earth Floors
By Patrick Cox

Dear Keith & Irene,

I wrote to you some time ago when the Pakenham Council refused to grant me a permit for an earth floor. I appealed against this decision to the Building Regulations Committee and won the appeal! I can now construct the kind of floor I wanted, except in wet areas, where I am going to use concrete.

The appeal was quite informal, although I was a bit intimidated by the whole thing. I put my case as simply as I could, using information from the Experimental Building Station in NSW about stabilised earth and from G. F. Middleton's *Build Your House of Earth.* I would encourage anyone with similar troubles to go through with an appeal.

The chairman of the Commitee said my case did not represent a precedent. However, if enough people went through the channels as I did, the Regulations would have to be looked at and changed accordingly.

I would like to thank you for the help you gave me and if there is anyone I can help in any way, they are welcome to write to me.

Patrick Cox, 14 Webb Street, Burwood, Victoria 3125.

The Owner-Builder Magazine

Edited by John Archer, quarterly, 64 pages. Price $2.50 single copy at bookshops and newsagents, or $10.00 annually from Stanley Avenue, Mallacoota, Victoria, 3889.

John Archer, author of Dirt Cheap and *Improvisations,* is behind this new magazine for owner-builders in Australia. The first issue, just out, has stories on underground dwellings, particularly a Coober Pedy 'dugout' octagonal homes, a log cabin, old pise houses in Adelaide and an interview with two women owner-builders.

The magazine will regularly cover building techniques, costs, legalities and feedback from owner-builders.

Building A Log House

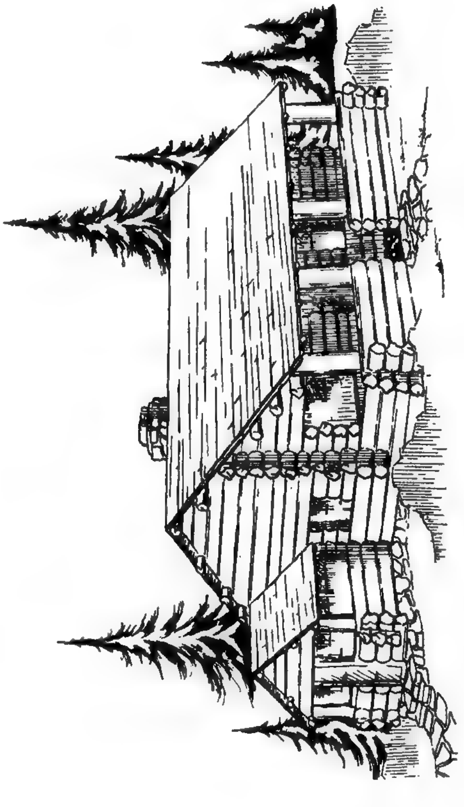
Part 1

The log hut or cabin, made of saplings or round timber notched at the corners, was rarely built by early settlers and selectors in Australia. In North America logs were used to build a dwelling quickly because there were plenty of trees and no sawmills.

The Australian pioneers preferred to adze or pit-saw timber to build a more durable slab hut (see *A slab cottage*, Earth Garden 26, pages 18-20), which did not need to be chinked with mud or clay against the weather.

Though logs are not the best building material for Australia, the technique may be adapted. We have been asked by many readers about log building, so we have decided to reprint this classic text put out by the extension service of The University of Alaska in 1965 (the first version was in 1914) and now out of copyright.

Final words: building with logs is hard work; choose logs with as little taper as possible; use the heaviest logs at the bottom; let us know how you get on.



BUILDING THE FOUNDATION

All buildings need a good foundation. For economy of labor and material, small log buildings can be put on piers of concrete or stone, but it is usually more satisfactory to use continuous walls of stone masonry or concrete to provide uninterrupted support for the logs and to prevent sagging. The walls, gable ends, and attics should have small screen covered openings for air circulation to prevent dry rot. The continuous foundation wall also prevents rodents from getting under the building. Logs should not be placed on the ground unless treated with decay resistant chemicals. Wood decays when in contact with the earth.

The two end walls of the exterior foundation should be higher than the side walls in order to offset the difference in the level of the logs on adjacent walls, the end-wall logs being half their thickness higher than those on the side walls. The chief problem in building a log wall is in closing the opening between each pair of logs. There are various ways of doing this, but only those regarded as most satisfactory will be described here. The width of such openings is affected by several factors: (1) The manner of placing the logs upon each other; (2) the type of corner used; (3) the openings for doors and windows; and (4) the natural shrinkage of the wood.

PREPARING THE LOGS

The selection of straight, smooth, even-sized logs is the prime consideration. Diameters should be as uniform as possible. As a rule the small (top) end should be 10-12 inches in diameter. Slightly smaller or larger dimensions may be used if necessary. The taper should be as slight as possible. For logs longer than 40 feet, the small end diameter may be less than 10 inches in order to avoid an excessive diameter at the large end.

Cedar, spruce, pine, fir, and larch, in the order named, are most desirable for log construction. Other timber available in your area may be adaptable. All knots, limbs or bumps should be trimmed off carefully when the log is peeled, unless desired for rustic appearance. It is best to cut the logs in late fall or winter, for two reasons: logs cut in the spring or summer peel easier, but crack or check badly while seasoning; and insect activity is dormant during the winter months, so fall-cut logs are less liable to damage by cracking, insects, or rot-producing fungi.

If possible logs should be cut, peeled, and laid on skids well above the ground for at least six months before being used. Logs should be stored in a single deck with two or three inches between them to permit complete exposure to the air. Logs having a sweep or curve should be piled with the curve up so that their weight will tend to straighten them while they are drying. Where the skidding space is limited, logs may be double-decked, using poles between tiers. Unrestricted air circulation aids seasoning. Avoid use of logs curving in two or more directions.

Sort the logs carefully before starting construction, using the better ones in the front or other conspicuous walls of the building. If the logs are not uniform in size, the larger ones should be placed at the bottom.

DIMENSIONS OF THE BUILDING

The dimensions of a log building are the inside measurements taken from one log to the corresponding log in the opposite wall. Outside dimensions vary somewhat with the size of the logs. Where projecting corners are desired, logs should be at least six feet longer than the inside dimensions of the building. If the walls are to be finished, the logs should be kept even, or plumb, on the inside faces.

FRAMING THE CORNERS

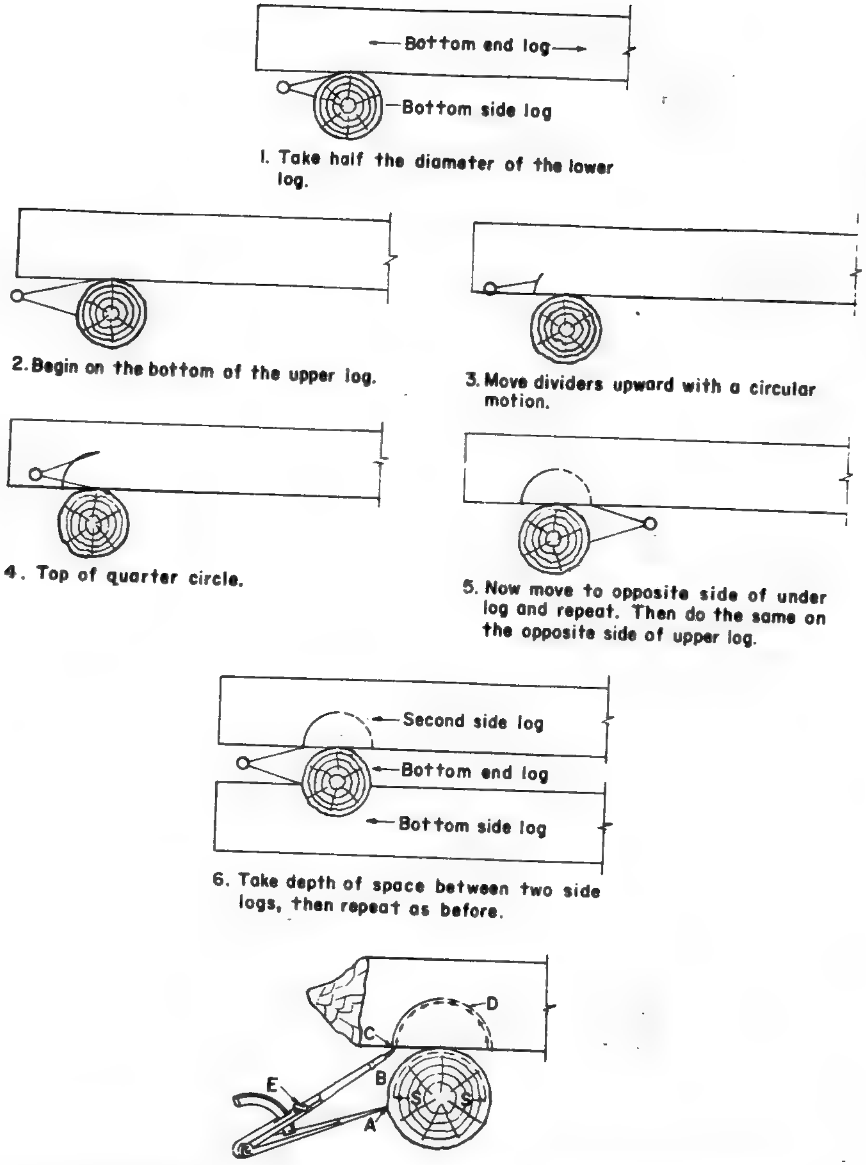
The corner is one of the most important aspects of log construction. The appearance and stability of the structure depends on it. Types of corner construction vary with local building customs or individual taste.

Round-Notch Corner: The round-notch, or saddle, corner is generally considered the most satisfactory from every standpoint. This type of corner is distinctive because the logs project sufficiently beyond the corner so as not to appear dubbed off. It is a good, self-locking, mechanical joint, relatively easy to construct, and holds the logs rigidly in place.

In cutting the saddle, the wood is taken out of the under side of the upper log without disturbing the top surface of the bottom log. Moisture drains out at the corner and the wood is less subject to decay than it is with other types of corners. The shrinkage in the outer area of the log's circumference tends to open up the space between the logs. Finally, in the round-notch corner, one-half of the shrinkage between the logs is allowed to remain in the corner. The separation, therefore, is not as great as if each log had been cut down to the heartwood, a disadvantage common to most other types of corners.

The tools required to make a round-notch, or saddle, corner are: a pair of log dogs to hold the log in place; 10 or 12-inch wing divider with pencilholder and level-bubble attachment, sharp ax, two-inch gouge chisel with outside bevel, cross-cut saw, spirit level, and plumb board.

The framing of this corner (Fig. 1) should be relatively easy. First, the bottom logs should be set in place on opposite sides of the foundation. Hew a flat face two to three inches wide on the under side of the log where it rests on the foundation, so that it will lay in place. Then place the bottom log on each end wall and center it accurately so the inside face of all four


Bottom end log
Bottom side log
1. Take half the diameter of the lower log.
2. Begin on the bottom of the upper log.
3. Move dividers upward with a circular motion.
4. Top of quarter circle.
5. Now move to opposite side of under log and repeat. Then do the same on the opposite side of upper log.
Second side log
Bottom end log
Bottom side log
6. Take depth of space between two side logs, then repeat as before.
D
C
B
E
S
S
A

Point A follows line B around log while point C starts under log and follows line D, holding bubble E, in the level, parallel at all times. The level serves to keep the point of the pencil in the same vertical plane as the point of the compass.

S is starting point for the scribe.

FIGURE 1. — Method of marking saddle corners.

logs is to the exact interior dimensions of the building. Dog the logs into place so they will not move while being marked for the corner notch. The wing divider is now set for one-half the diameter of the side log. With the lower leg of the divider resting on the side of the under log and the other leg, with the level bubble uppermost, resting against the bottom of the upper log and directly above the edge of the under log, start moving the divider upward, with a side motion, so that the lower leg follows the curvature of the under log. The pencil point of the upper leg makes a mark on the surface of the upper log which will be the intersection of the surfaces of the two logs when the notch has been cut from the upper one. Repeat this operation four times to mark all four sides of the corner. A little practice will make you adept at keeping the points of the divider perpendicular to each other.

After the notch has been marked at both ends of the log, turn the top side down. It is a good idea to intensify the divider mark with an indelible pencil so that it will be easily followed.

Chop the notch out roughly, (Fig. 2) then chip down as closely as possible to the mark, supplying the finishing touches with a gouge chisel. The finished notch should be cupped out just enough to allow the weight of the log to come on the outside edges, thus insuring a tight joint.

When the next side log is rolled into place, the dividers should be set apart for the width of the space between it and the top of the first side log. And the marking should be repeated. If

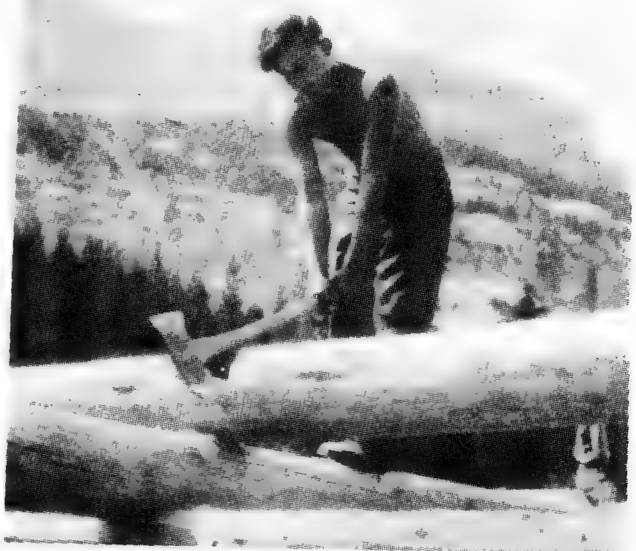


FIGURE 2. — Chopping the notch in a saddle corner.

you wish to have the upper log "ride" the lower one a little, so that an especially tight joint is obtained, the dividers should be set a little wider apart than the space requires.

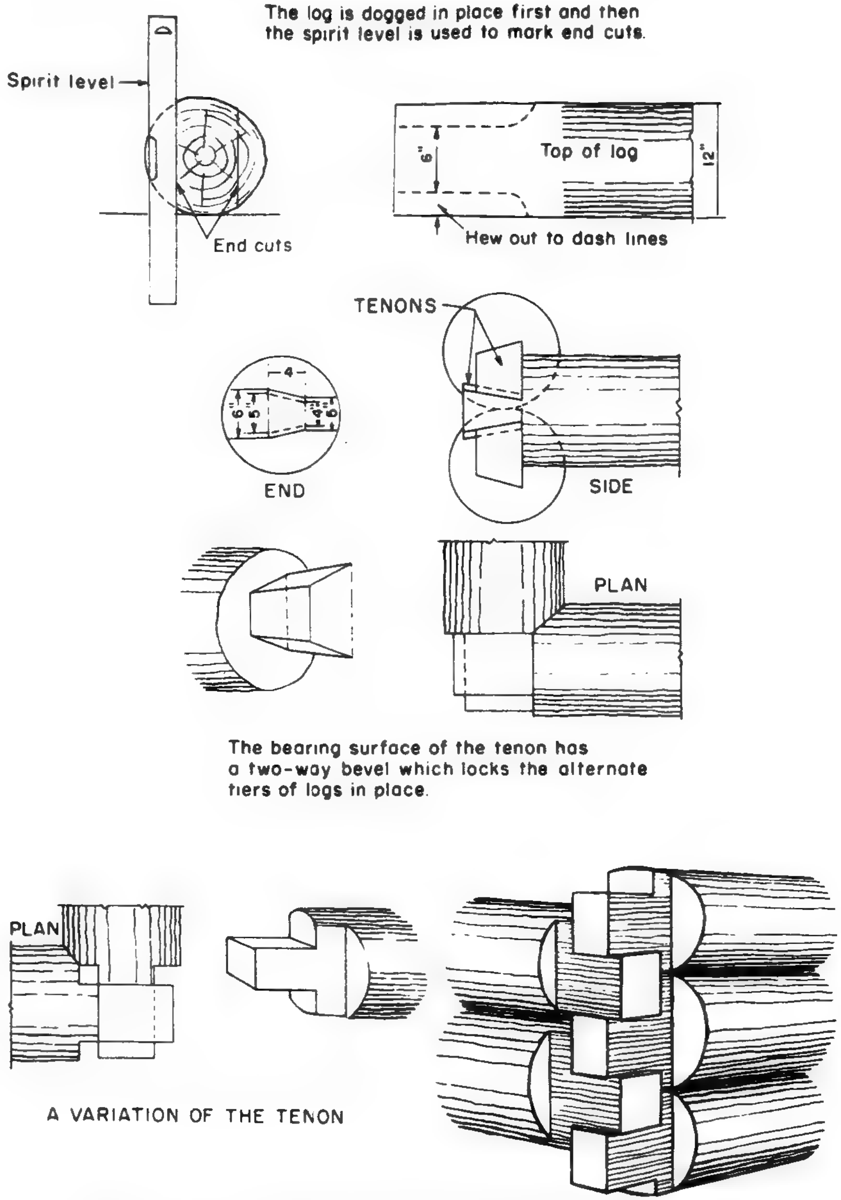

The log is dogged in place first and then the spirit level is used to mark end cuts.
Spirit level
End cuts
Top of log
6"
12"
Hew out to dash lines
TENONS
4
END
SIDE
PLAN
The bearing surface of the tenon has a two-way bevel which locks the alternate tiers of logs in place.
PLAN
A VARIATION OF THE TENON

FIGURE 3. — Marking and framing the dovetail, or box, corner.

Other Log Corners: The dovetail, or box, corner (Fig. 3) is a strong corner, but considerable experience is required to do a neat job. Also, logs are apt to develop a wide crack because the corner is framed from the part of the log in which the least shrinkage occurs, and since the logs are hewed down to form the corner, the wood tends to collect moisture causing decay. This corner also detracts noticeably from the natural, rustic appearance desirable in log structures. Figure 3 shows the most practical methods of marking and framing.

The flat, or plain, tenon corner (Fig. 4), is also common. It is made in two ways. Either the bearing surfaces are framed, or all four sides of the tenon are framed flat. The plain tenon corner does not have the desirable self-locking feature. However, it is simple and economical to make, and therefore especially suitable for temporary structures. The logs must be pinned together, as shown in Figure 7. All the framing can be done on the ground, before the logs are put in place. Carefully fitted, this makes a neat-looking job.

Directions for constructing the flat, or plain, tenon corner — Square one end of the log, (Fig. 4) at point A, then measure the required length and saw the opposite end square, at B. If the log has any curvature, turn it on the skids until its back is up. Determine the thickness of the tenons, based upon the average

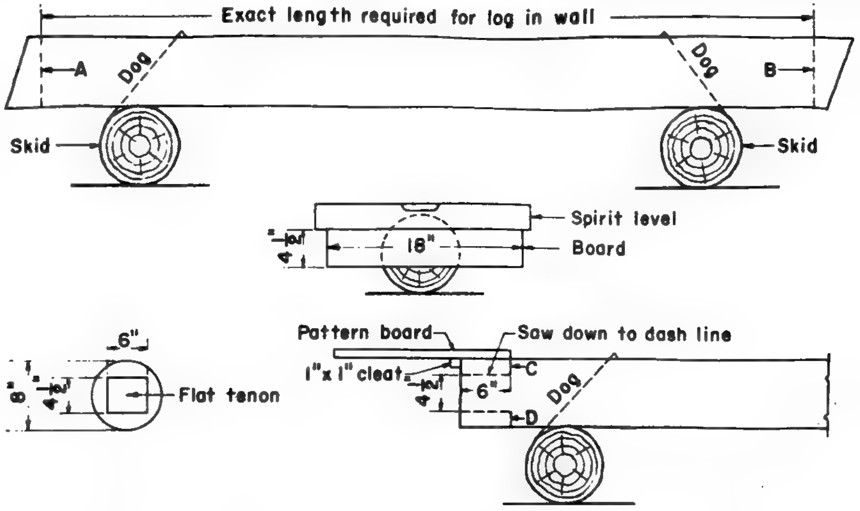


FIGURE 4. — Framing the flat, or plain, tenon corner.

top and butt diameters of the log. Then take an 18-inch length of board the same width as the thickness of the tenons, driving a nail through its center and into the center of the log. Place the spirit level on top of the board and mark lines on the log at the top and bottom edges. The width of a tenon varies with the diameter of the logs; eight to ten inches diameter will produce six to seven inch wide tenons.

Nail a one by one inch cleat on the pattern board at points C and D. Then make saw cuts on each end, cut the chip off and smooth the surface. Turn the log over and repeat on the other side. After framing out the sides of the tenon, the log is ready to be placed. Some fitting between corners is usually necessary but the work will be minimized if the logs are fairly straight and smooth.

The upright, or groove-and-tenon, corner (Fig. 5) is widely used in the West. It has desirable mechanical features. The weight of the building is carried on the full length of the logs and does not rest solely on the corners, as in other types. And it makes a tight wall because no openings will develop between the logs. Although not difficult to construct, the upright corner requires considerable mechanical skill and accuracy. A good carpenter can frame the entire building on the ground before any logs are placed on the foundation and it can be erected in a very short time. Next to the round-notch corner the upright, or groove-and-tenon corner, probably has the best appearance.

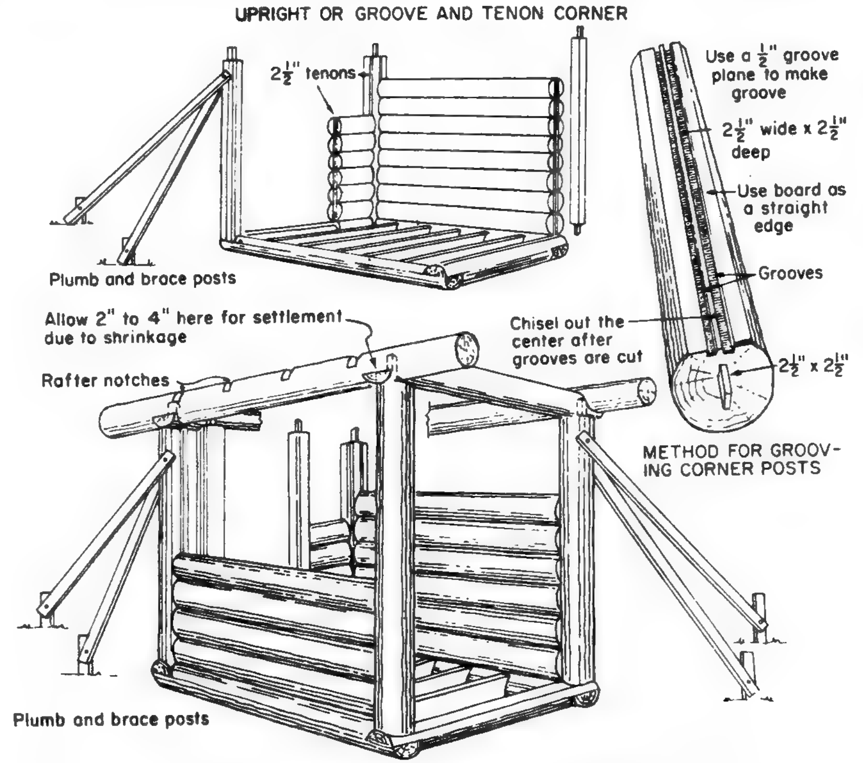

UPRIGHT OR GROOVE AND TENON CORNER
2½" tenons
Plumb and brace posts
Use a ½" groove plane to make groove
2½" wide x 2½" deep
Use board as a straight edge
Grooves
Chisel out the center after grooves are cut
2½" x 2½"
METHOD FOR GROOVING CORNER POSTS
Allow 2" to 4" here for settlement due to shrinkage
Rafter notches
Plumb and brace posts

FIGURE 5. — Framing the upright, or groove-and-tenon, corner.

DOOR AND WINDOW JAMBS

Door and window jambs should be framed just like the corners except that only the back should be grooved. The door side, or face, may be rabbeted or left smooth so that a separate wood doorstop may be nailed in place. If the logs are reasonably dry, three to four inches should be left at each corner for settlement due to shrinkage; otherwise, more or less space should be allowed, as conditions require. In about six months the cap log will come down and close this gap. Similar provisions should be made for settlement over door and window openings.

FLOOR JOISTS

As soon as the first round or tier of logs is laid, the floor joists should be set in place, notching them into the bottom side logs. If the building has a continuous masonry foundation, the joists may be set on top of it, as in a frame building.

In order that the ends of the joists may have sufficient bearing on the wall, it is necessary to either notch the ends into the side logs or hew the latter off on the inside. A simple method is to cut the notches in the side logs before they are rolled into place. Pole joists should be four to eight inches in diameter and hewed level on the upper side to provide a solid bearing for nailing the flooring. Several ways of framing the floor joists are shown (Fig. 6).

LAYING THE WALL LOGS

In laying the successive rounds of logs in the walls, several details must be observed to keep them lined up so that the top logs form a level seat for the roof framing. The corners should be kept as level as possible as each round is laid. This can be done by measuring vertically from the top of the floor joists, from time to time, as a check. A variation of one inch in height will not cause serious difficulty.

The height of the corners is regulated in two ways: by increasing or decreasing the depth of the notch, and by reversing the top and butt ends of the logs when laying them in the wall.

The logs should be fitted together as tightly as possible. For irregularly surfaced logs, it may be necessary to smooth off certain portions of the under side of the upper log to secure a tight fit. Only in exceptional instances, however, should this be done to the top of the lower log.

The face of the logs on the inside of the building must be kept plumb, that is, in the same vertical plane. An ordinary carpenter's or spirit level may be used, but a six to eight foot

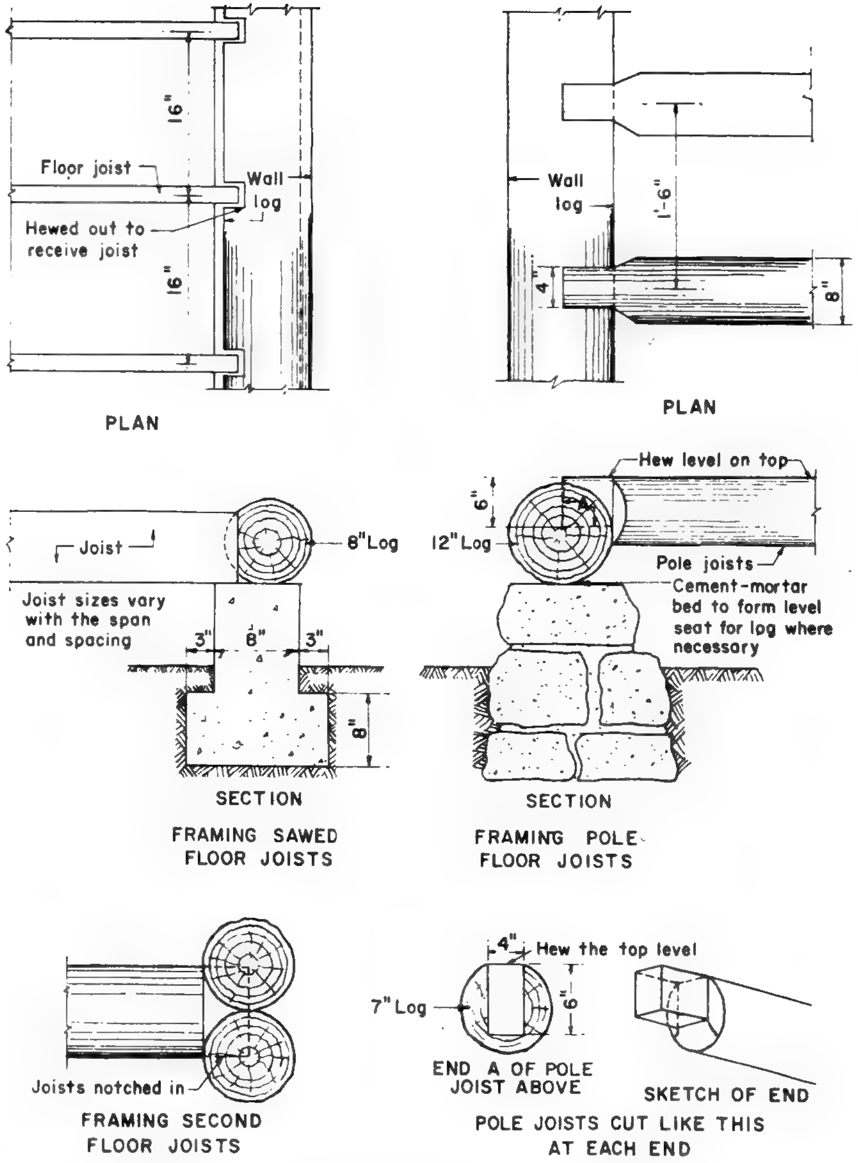

16"
Floor joist
Wall log
Hewed out to receive joist
16"
PLAN
Wall log
1'-6"
4"
8"
PLAN
Joist
8" Log
Joist sizes vary with the span and spacing
3"
8"
3"
8"
SECTION
FRAMING SAWED FLOOR JOISTS
Hew level on top
6"
12" Log
Pole joists
Cement-mortar bed to form level seat for log where necessary
SECTION
FRAMING POLE FLOOR JOISTS
Joists notched in
FRAMING SECOND FLOOR JOISTS
4"
Hew the top level
7" Log
6"
END A OF POLE JOIST ABOVE
SKETCH OF END
POLE JOISTS CUT LIKE THIS AT EACH END

FIGURE 6. — Framing floor joists.

plumb board is considered most satisfactory because of its greater length.

The logs should be pinned together with a wooden pin or large spike (Fig. 7). Spiking is done by boring a ¾-inch hole halfway through the upper log and continuing with a 7/16-inch hole through the bottom half. Then drive a ten to twelve inch spike into place, or until it penetrates half the next log below. The spikes should be staggered in alternate rounds or tiers of logs. If wooden pins are used, dry spruce is preferable. Neither wooden pins nor spikes, however, offer interference to the settling of the walls.

The spike method is easier and quicker, and is considered by some, to be just as satisfactory as the wooden pin. The logs should be pinned approximately two feet from each corner and at each side of the window and door openings. For small structures, where the alignment of the walls is not so important, pinning may be eliminated, but it is essential to align larger buildings accurately in order to prevent individual logs from springing out of place.

Split-End Pin: This method of pinning (Fig. 7) may find many other applications, such as furniture repair, or for attaching beams and making connections any time steel or spikes are not available.

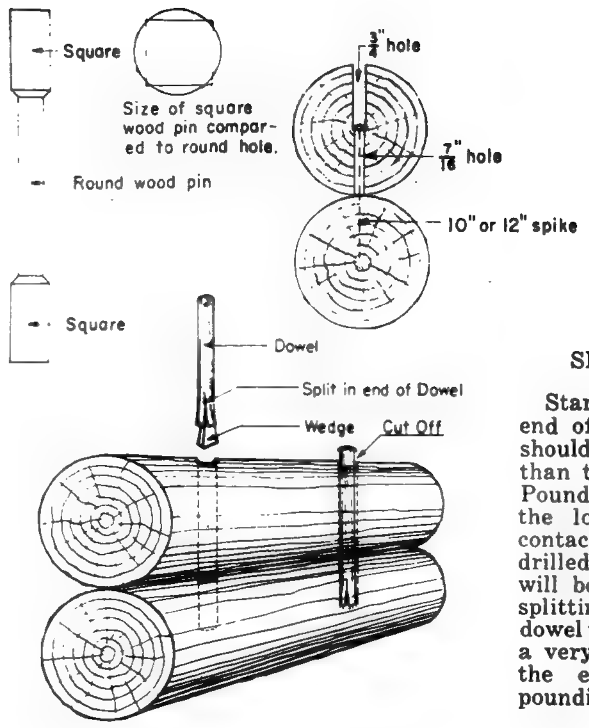


FIGURE 7. — Pinning logs together.

SPLIT-END PIN

Start wedge in split end of dowel. The dowel should be slightly smaller than the hole in the logs. Pound the dowel through the logs till the wedge contacts the bottom of the drilled hole. The dowel will be forced in and the splitting will cause the dowel to expand and create a very tight pin. Cut off the excess dowel after pounding securely.

(To be continued next issue.)

access

First Annual Exhibition of Alternatives

August 29-30, 1981
Down to Earth Co-op, Victoria
2 Stephenson Street, Richmond,
Victoria 3121
Phone (03) 428 6866

The Victorian DTE Family will hold its first Annual Exhibition of Alternatives over the weekend of August 29-30.

They expect to present a display of alternatives in the areas of conservation of natural resources, energy and education, new ideas on self sufficiency, personal health and preventative medicine, different spiritual outlooks and awareness of social and political problems.

(Information from George Schmidt)

Spirit, Mind and Body Healing Festival

September 5-12, 1981 at Yondaio, Catherine Hill Bay, near Swansea, NSW.

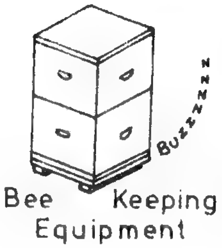
Described as a "loving, growing and learning experience" the festival will be held in bushland and give people the chance to join in dancing, fun and music and to hear some of Australia's best lecturers in natural health.

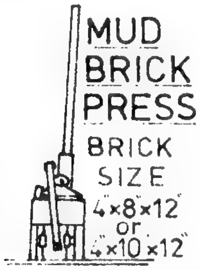
For further information, send sae to *Loving Links,* Graydon and Kharime Rixon, 192 Hawkesbury Road, Springwood North, NSW 2777.

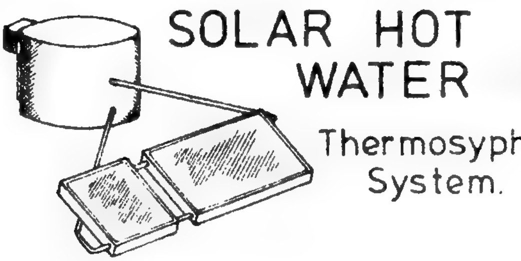
Permaculture Design Course

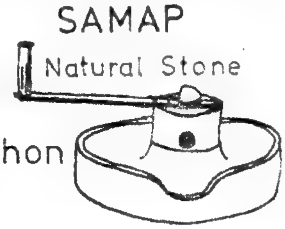
The Permaculture network needs more designers. There will be a course held on the Sunshine Coast of Queensland between September 5 and 19. Major emphasis will be given to tropical and subtropical climates.

If interested, write to: Lea Harrison, c/- PO, Tyalgum, NSW 2484.









Going Solar

New address: 320 Victoria Street,
North Melbourne, Victoria 3051

Going Solar is Melbourne's one-stop shop for tools and text on energy, agriculture and self-sufficiency. Under one roof you will find slow combustion cooking stoves, pot belly heaters, solar hot water kits, stainless steel tapered mud brick moulds, vegetable, herb and flower seeds, fruit and nut trees, 2 lb bread tins, seagrass insulation, mud brick press, grain grinders, preserving and storage jars, gardening tools, beekeeping equipment juicers and glasshouses.

There are helpful books on energy, building, craft, gardening, farming and self-sufficiency. Going Solar is also the only outlet in Melbourne which stocks all the back issues of *Earth Garden* (including the *Access* issues).

Outlook Alternatives
Alternative Technology Centre

Greta West Road, Oxley, Victoria.
Phone: (057) 27 3261

Near Oxley School, close to Wangaratta, Beechworth, Milawa and Glenrowan. Open Saturdays, school holidays & Sundays (afternoon), or weekdays by appointment.

A showplace of alternative energy equipment which you can see at work in a rural setting, some of which is for sale. You can stroll around and see a wind generator, pot belly stoves, wood boiler, electric moped, solar water heater, hydraulic ram, hand pumps, solar pump, solar radio, stone grain grinders, compost tumbler, a duck pond, woodlot, vegetable gardens, sewage irrigated orchard, trickle watering, fowls and goats and have a barbecue or picnic and buy books and leaflets on low energy topics.

The *Visitors' Guide* booklet has full details of the centre and is available at $1.50 posted from RMB 9010, Wangaratta, Victoria 3678.

(Information from Heather McKean)

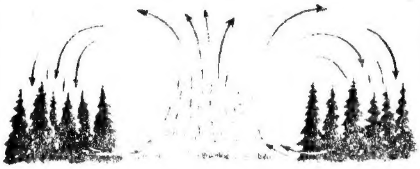
Men of the Trees

Branches of the organisation founded by Dr Richard St. Barbe Baker are forming throughout Australia following his most recent visit. There is a campaign to make 1982 the *Year of the Tree* in Australia and M.O.T.T. will be organising and highlighting the important part that trees play in our existence.

Men of the Trees, Victoria, Secretary, Mrs M. Down, 4B Yarrbat Avenue, Balwyn, Victoria 3103.

Men of the Trees, NSW, Secretary, Mrs Pat Steed, 29 Darwin Street, Carlingford, NSW 2118. Send stamped, self-addressed envelope for further details.

(Information from Ken Boness & Pearl White)



Men of the Trees, Western Australia, C/- Charles Peaty, 1179 Hay Street, West Perth, WA, 6005.

Men of the Trees, Queensland, The Secretary, PO Box 283, Clayfield, Qld, 4011.

Men of the Trees, South Australia: Dr Richard St Barbe Baker hopes to visit Adelaide in September and we plan to launch a branch then. Any SA reader interested can contact Burr Dodd at PO Box 720, Bridgewater, SA, 5155.

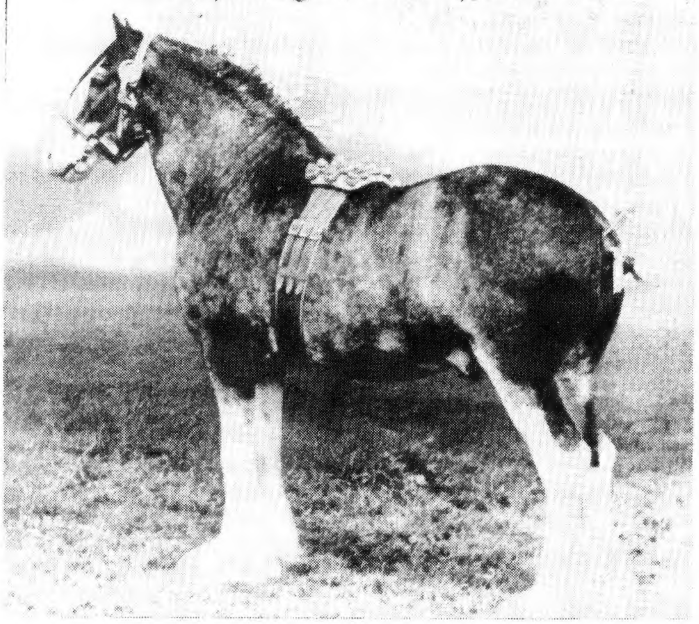
(Information from L. Honbein).

HORSE LINE

Anyone with a nursery interested in swapping two broke-in horses for trees and plants? "Sunshine" is a beautiful, big, black stallion, part Clydesdale and "Blanche" is a white mare in foal by him. They are both good riding horses and have lovely temperaments. "Sunshine" could easily be trained to pull a sulky, "Blanche" is an excellent brood mare and she gave us three fillies in a row. Do you need to swap for plants? Or for money?

Please make an offer and drop us a line: Dany & Lesley, The Magik Farm, Beechwood, NSW, 2446.

The Clydesdale Horse



The Commonwealth Clydesdale Horse Society

Membership $15.00 annually, from The Secretary, Royal Show Grounds, Epsom Road, Ascot Vale, Victoria 3032.

Early in the nineteenth century, the farmers in that part of Scotland, then known as Clydesdale, but since renamed Lanarkshire, were doing their utmost, by selective mating, to perfect a type of draught horse which later became known from its place of origin as the Clydesdale breed.

Much care and forethought were exercised over the breeding of this stock and in the course of time there was developed the type which for over 160 years has been recognised as a distinctive breed of draught horse.

The Clydesdale Breed Society was formed in Scotland in 1877. Early stallions which had a profound influence on the breed included Darnley, Prince of Wales, Barons Pride and Baron of Buchlyvie followed by probably the best known of all Dunure Footprint renowned as the most prolific breeding sire in horse breeding history.

The Clydesdale has been developed into a handsome weighty and powerful animal with ample gaiety of carriage and outlook. Among his outstanding characteristics are his combination of weight, size and activity, with exceptional wearing qualities in respect of the feet and legs.

These characteristics have been consistently aimed at all through the history of the breed. Occasionally during the past seventy or eighty years, there have been variations in the degree of emphasis placed upon various points, but, amidst all such variations, one cardinal principle has been kept in view, the wearing, enduring qualities of the feet and legs.

A quiet disposition and silky flowing feathers and spats are features of the breed.

The early settlers coming to Australia required strong active horses. The Clydesdale was well suited to their needs and gained much in popularity among the farming community. In the late 1880's a Draught Horse Stud Book was compiled and contained all draught breeds at that time.

In 1918 the Commonwealth Clydesdale Horse Society was formed and started their own stud book which contained pedigrees of 500 stallions and 1,000 mares.

Breeders continued to import large numbers of Clydesdales from Scotland to maintain the standards of the studs and the working horses. This continued until the outbreak of World War 2, when horse numbers began to decline rapidly due to the mechanisation of farming.

On becoming a cliche.

But as pure physics had lost its earlier appeal for Andrews, so did the pure earth garden ideals of a completely decentralised, rural-based economy. He decided they were "impractical and undesirable" and began looking for ways to apply the ideals of the alternative technology to mainstream society.

. . . He says: "Basically I view a conserver future as a practical path somewhere between today's greedy, growth-oriented consumerism, and the utopian back-to-the-earth-garden ideal of a nation of Nimbins.

"It's not a case of turning back the clock: the vision isn't one of loin cloths, caves, home-made windmills, remote self-sufficient farmlets. . . "

Sandra McGrath, quoting John Andrews in The Weekend Australian, July 11-12, 1981.

It's always flattering to have a term that you've coined added to popular usage.

For some years now, we've noticed *Earth Garden,* with and without capitals, hyphens, italics or quotation marks, cropping up regularly in a wide range of books, references and indexes. It gives us an eerie feeling to know that we're already 'footnotes in history'.

Usually the name is used as a cliche to convey an image of some impossible form of utopian idealism, which is exactly the meaning we intended when we chose it as the title of our magazine (and our registered business name). Why shouldn't the world become an earthly paradise?

Not that there's very much wrong with cliches. Though the modern connotation is one of an overused or hackneyed phrase, cliches are often rather apt and succinct and their meaning is universally understood. The origin of the word is delightful also, coming from the French for a stereotype plate and attributed to the click (French *clicher)* made when the metal blocks were placed in a form ready for printing.

Self-sufficiency is another cliche, often criticised as suggesting an individual in total isolation (like someone in a cave) who supplies all their needs. We have always intended it in the sense now applied to *self-reliance,* that of lots of people, helping each other, yet depending on no outside authority and providing as much as possible of their necessities of life.

The extracts from Sandra McGrath's story in *The Weekend Australian* of July 11-12, 1981, which brought on these thoughts, are quotes taken from the new Penguin book, *Living Better with Less,* by Ian Pausacker and John Andrews. The book, which we'll review next issue recommended for its proposals, strategies and suggestions for a 'conserver society' and an end to 'growthmania' consumerism (some cliches in the making).

Anybody who reads *Earth Garden* knows that — *because* of our ideals — our feet are on the ground, that our stories are practical and aimed at helping people help themselves. But we would very much like to have a story on making loin cloths from any cave dwelling subscribers. As for a 'nation of Nimbins' . . . Hmmm, not a bad idea!

Thank you all for the warm response with advance subscriptions for 1982. The offer remains open at $9.00 for the four issues posted. All our back issues are still in stock, with a complete set of EG1 to EG36 available at $61.50 posted.

Peace & Love
Keith & Irene

EARTH GARDEN, PO Box 378, Epping, NSW, Australia, 2121

Prices — includes postage

Single issues:	**EG1-EG10 — $1.25 each**	$
	EG11-EG14 — $1.45 each	$
	EG15 & EG16 — $2.00 each	$
	EG17-EG21 — $1.80 each	$
Access 1 & 2:	**EG22-3 & EG25 — $3.50 each**	$
	EG24 (Place) — $1.80	$
	EG26-EG36 — $2.25 each	$
Sets:	**EG1-EG25 — $37.50**	**$**
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